CHAPTER

# 5

# *Municipal Conservation Program*

## 5.1 INTRODUCTION

The primary goal of the Municipal Conservation Program is to gradually reduce per capita water consumption by encouraging the use of the best available water conservation practices and maximizing the efficient use of all water supplies including the direct use of effluent. For the third management period, the Arizona Department of Water Resources (Department) is increasing its attention on renewable supply sources, particularly the substitution of groundwater use with renewable supplies and the use of artificial recharge. The Municipal Conservation Program in the Third Management Plan encourages the equitable distribution of water in an environmentally and economically sound manner through long-range planning, cooperative regional efforts, technical assistance, public education, and regulatory programs. The efficient use of all sources of water and replacement of AMA groundwater sources by alternative supplies will help ensure a sustainable and secure water supply for the future.

As the Prescott Active Management Area (AMA) moves toward the end of the second management period, improved monitoring of the status of the AMA aquifers and the utilization of a hydrologic model of the AMA have provided the Department with a better technical understanding of water resource conditions in the Prescott AMA.

An imbalance of demands versus supplies in the Prescott AMA will likely one day necessitate the importation of additional water supplies to serve new growth. Until such a time, the reuse of treated effluent, either through direct use for turf-related facility irrigation or for agricultural purposes, or through underground storage and recovery projects, will help to postpone the day when water supplies will need to be brought in from outside the AMA. In addition, maintaining and continuing to strive for a high efficiency of use (a low per capita use rate) and maximizing both effluent reuse and surface water use can significantly reduce the amount of any future imported water.

The community of the Prescott AMA has shown increasing interest in the development of a regional water management strategy, in terms of both supply and demand. As development continues, decisions regarding planned per capita demand, sources of supply used, and locations and types of water supply infrastructure will affect not only the appearance of the AMA, but the degree to which supplies are available for additional growth or during times of drought. To aid in the creation of the community's vision for the future, Department staff are available to provide explanation of statutory provisions and water management options, to prepare geographic information, to perform data analyses, and to review various water demand and supply scenarios using the Department's hydrologic model. Key to projecting the time of need of additional water supplies is the collection and maintenance of a good data base. This requires all water users in the Prescott AMA to keep the most detailed and accurate records possible to allow for the most accurate prediction of water supply and demand problems, and to allow time for preparation of alternative solutions to water management problems. Throughout the third management period, Prescott AMA staff will work in tandem with the community to develop additional monitoring and planning tools and to help manage water supplies and demands in order to construct the viable economic future that is desired.

Municipal water providers include cities, towns, private water companies, and irrigation districts that deliver groundwater for non-irrigation uses (such as residential, commercial, governmental, industrial, and construction uses). Municipal water providers can also include well co-operatives, mobile home parks, or improvement districts. The Department regulates those water providers serving more than 250 acre-feet of water for non-irrigation use annually as large municipal providers. Those providers serving 250 acre-feet or less annually are regulated as small municipal providers.

The municipal sector in the Prescott AMA accounted for about 53 percent of the total AMA water use in 1995, 59 percent in 1996, and 60 percent in 1997. Many people within the Prescott AMA are not provided water through a central distribution system but instead pump water from small, private, domestic wells

(with less than 35 gallons per minute pump capacity). Municipal providers are currently dependent on groundwater to meet their needs. Use of effluent for turf-related watering is increasing in the Prescott AMA. A small portion of municipal demand is met with effluent. Growth in the municipal sector is expected to exceed growth in the other water use sectors as new residents continue to move to the area and as agricultural demand continues to decline. In the Prescott AMA, population has increased an average of 3 percent per year, from 1987 through 1995. Factors affecting water demand and supply, as well as historic water use, are covered in greater detail in Chapter 3.

On January 12, 1999 the director of the Department declared the Prescott AMA to be no longer in a state of safe-yield. Legislation adopted during the 1998 session established interim guidelines for applicants for assured water supply during the public process period required before the director could issue a Final Decision and Order regarding the AMA's safe-yield status. As of March 5, 1999, after a 60 day period to request administrative appeal expired, the interim guidelines expired and new development will be required to demonstrate consistency with the Assured Water Supply Rule criteria for consistency with the safe-yield goal. This is accomplished by demonstrating that alternative supplies will be used to satisfy the majority of the new development demand, and that there will be a reduction in the reliance on mined groundwater to meet demand. Further discussion of the impacts of the declaration is contained in Chapter 3.

Conservation programs have been instituted by municipal water providers in response to regulatory requirements of the First and Second Management Plans. While implementation of such programs has been successful, a firm commitment to the continued implementation of conservation measures and implementation of additional measures will result in further reductions in per capita use rates and increased water use efficiency in the municipal sector. Increased conservation efforts combined with redistribution of AMA water supplies, which may in part be accomplished through artificial recharge, are needed in order to achieve the safe-yield goal of the AMA by the year 2025.

## 5.2 STATUTORY PROVISIONS

### 5.2.1 Per Capita Requirements for Large Municipal Providers

The Groundwater Code (Code) requires that the management plans for each AMA include a conservation program for municipal uses. For the first, second, and third management plans, the Code expressly mandates that the programs require reasonable reductions in per capita use. A.R.S. §§ 45-564(A)(2), 45-565(A)(2), and 45-566(A)(2). To comply with this mandate the Department developed the Total Gallons Per Capita Per Day Program (Total GPCD Program). As originally enacted, the Code did not exempt any municipal providers from the requirement to achieve reductions in per capita use. Consequently, the municipal conservation program in the First Management Plan established maximum gallons per capita per day (GPCD) requirements for all municipal providers, regardless of size.

In 1986, the Legislature amended the statutes governing the second and third management plans to exempt "small municipal providers" from the requirement to achieve reasonable reductions in per capita use. Laws 1986, Ch. 107, §§ 2 and 3. Instead of requiring small municipal providers to achieve reductions in per capita use, the statutes require the director to establish "reasonable conservation requirements for small municipal providers." A.R.S. §§ 45-565(A)(4) and 45-566(A)(4). Until 1994, "small municipal provider" was defined in the Code as "a city, town, private water company or irrigation district that supplies water for non-irrigation use, serves less than five hundred people and supplies less than one hundred acre-feet of water for non-irrigation use during a calendar year." Laws 1986, Ch. 107, § 1. In 1994, the Legislature changed the definition of small municipal provider to "a municipal provider that supplies two hundred fifty acre-feet or less of water for non-irrigation use during a calendar year." A.R.S. § 45-561(13).

Two other statutory amendments have created exceptions to the requirement that municipal providers achieve reasonable reductions in per capita use. In 1991, the Legislature exempted large untreated water providers from the requirement to achieve reductions in per capita use. Laws 1991, Ch. 211, §§ 16, 17, and 18. In 1992, the Legislature enacted legislation requiring the director to include in each management plan a Non-Per Capita Conservation Program for large municipal providers as an optional, alternative program to the program requiring reductions in per capita use. Laws 1992, Ch. 183, §§ 5, 7, and 9. Those amendments are described in greater detail in the following two sections.

### 5.2.2 Non-Per Capita Conservation Requirements for Large Municipal Providers

In 1992, the Legislature enacted legislation requiring the Department to include in the management plans a Non-Per Capita Conservation Program (NPCCP) as an optional, alternative program to the Total GPCD Program requiring reasonable reductions in per capita use. Each provider regulated under the NPCCP is required to implement specific residential and non-residential conservation programs for interior and exterior water use, a public education program relating to water conservation, and a program to meter most service area connections. Additionally, providers who are regulated under the NPCCP are required to either reduce their groundwater pumping consistent with the Assured Water Supply Rules (AWS Rules) (A.A.C. R12-15-701, *et seq.*) or eliminate their use of mined groundwater by the year 2010. The NPCCP is a performance based program with compliance determined by the effective implementation of stipulated conservation measures and the required groundwater reduction. For the Third Management Plan, the statutory requirements for the NPCCP are found at A.R.S. § 45-566.01.

### 5.2.3 Conservation Requirements for Individual Users

In addition to requiring the director to establish conservation requirements for municipal providers, the Code requires the director to establish in the Third Management Plan "such other conservation measures as may be appropriate for individual users." A.R.S. § 45-566(A)(2). An "individual user" is a person or entity who receives water from a municipal provider for a non-irrigation use. In the Third Management Plan, the director has established conservation requirements for the following individual users: turf-related facilities, large-scale cooling facilities, and publicly-owned rights-of-way.

A municipal provider that receives notice of an individual user conservation requirement is responsible for complying with the requirement with respect to all individual users to which it serves water and to which the requirement applies, with two exceptions. First, the municipal provider is not responsible for complying with the requirement with respect to an individual user that has received notice of the requirement directly from the director. In that case, the individual user is responsible for complying with the requirement. Second, if the requirement is substantially identical to an industrial conservation requirement, the municipal provider is not responsible for complying with the requirement with respect to an individual user which it has identified in writing to the Department by a specified date. If the individual user was in existence when the management plan was adopted, the municipal provider must have identified the individual user to the Department at least 90 days before the management plan was adopted. A.R.S. § 45-566(B). If the individual user came into existence after the management plan was adopted, the municipal provider must identify the individual user to the Department within 90 days after it begins serving water to the individual user. If the municipal provider identifies a new individual user to the Department more than 90 days after it begins serving water to the individual user, the municipal provider will be responsible for complying with the individual user requirement until the end of the year in which it first identifies the user to the Department. See section 5-111 of the municipal conservation requirements.

### 5.2.4 Distribution System Requirements

The director is required to include in the Third Management Plan "additional economically reasonable conservation requirements for the distribution of groundwater by cities, towns, private water companies,

and irrigation districts within their service areas." A.R.S. § 45-566(A)(5). Distribution system requirements for municipal providers consist of a requirement to limit lost and unaccounted for water and a requirement to meter deliveries.

## 5.3 RELATIONSHIP OF SECTOR TO ACHIEVEMENT OF MANAGEMENT GOAL

Since the beginning of the first management period, groundwater use in the municipal sector has expanded with increasing demand in the Prescott AMA. The table below illustrates the municipal sector's balance of groundwater demand to renewable supply use in the Prescott AMA between 1990 and 1997.

**TABLE 5-1**
**MUNICIPAL PROVIDER DEMAND/SUPPLY BALANCE[1]**
**PRESCOTT ACTIVE MANAGEMENT AREA**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|
| Groundwater Use by Providers | 7,088 | 7,410 | 7,439 | 8,329 | 8,764 | 9,136 | 10,328 | 10,383 |
| Effluent recharge/ Effluent direct use | 2,475 | 2,840 | 3,209 | 3,660 | 3,425 | 4,063 | 4,158 | 4,854 |
| Balance | 4,613 | 4,570 | 4,230 | 4,669 | 5,339 | 5,073 | 6,170 | 5,529 |

[1] This table does not include pumpage associated with private domestic wells.

Due to the adoption of the AWS Rules, which require new subdivisions to be supplied with renewable resources, the municipal sector will increasingly use renewable supplies. It is assumed that both of the large municipal providers in the Prescott AMA will be seeking designations, accounting for the majority of the water use in this sector. Although these municipal providers will have the ability to issue groundwater to the large number of lots approved before the preliminary determination that the AMA was no longer at safe-yield in August, 1998, development from subdivisions approved after August, 1998 will be required to utilize renewable water supplies or imported water to meet demands.

The AWS Rules, although they require the use of renewable supplies for new subdivisions, do not address residual overdraft (groundwater mining allowed under the Code) associated with existing municipal uses and previously approved subdivisions which are allowed to continue receiving groundwater. These uses include demand which existed or lots which were subdivided prior to the preliminary determination of groundwater mining in the Prescott AMA, and non-residential uses served by undesignated municipal providers. Unless changes are made to the Code or to the AWS Rules these uses can be addressed only through implementation of water conservation measures, including renewable supply incentives. In the Prescott AMA, the demand associated with existing municipal uses is about 10,000 acre-feet per year. The potential future municipal "committed" demand with rights to receive groundwater is approximately an additional 10,000 acre-feet per year. While a certain volume of municipal demand can be supported long-term by the AMA's aquifers, annual replenishment through natural recharge is not enough to cover this 20,000 acre-feet of current committed demand.

With the declaration that the AMA is no longer at safe-yield, institutional and geographic constraints to water supplies will be challenges for municipal providers. Particularly affected will be those developers whose subdivisions will be served by undesignated water providers. Developers are required to obtain Certificates of Assured Water Supply for new growth if their subdivisions will be served by undesignated municipal water providers. This situation may facilitate the creation of some type of cooperative agreement, improvement district, or augmentation authority which may allow these developers and perhaps

even other additional users, such as individual well owners or small private water companies, to create a tax base to develop renewable supply infrastructure.

Because of the tendency of development to occur in hardrock areas in the Prescott AMA, the Department may need to analyze safe-yield on a more localized basis. While some areas of the AMA may be experiencing increases in groundwater levels, other areas are declining. Local area management is one alternative that the Department will analyze throughout the third management period based on approaches to demand and supply management for areas of critical supply conditions (see Chapter 8).

## 5.4 ASSURED WATER SUPPLY PROGRAM

The Code requires persons proposing to offer subdivided lands for sale or lease within an AMA to demonstrate that the proposed subdivision has an assured water supply. A.R.S. § 45-576. If a subdivider fails to demonstrate that a proposed subdivision has an assured water supply, the plat for the subdivision may not be approved by a city, town, or county, and the state Real Estate Commissioner may not issue a public report authorizing the sale or lease of the subdivided lands. A.R.S. § 45-576(B) and (C).

There are two mechanisms for demonstrating that a proposed subdivision has an assured water supply. First, the subdivider may apply for and obtain a Certificate of Assured Water Supply (Certificate of AWS) from the director. Second, the subdivider may obtain a written commitment of water service for the subdivision from a city, town, or private water company which the director has designated as having an assured water supply. A.R.S. § 45-576(A). For both of these purposes, "assured water supply" means that sufficient water of adequate quality will be continuously available to meet the water needs of the proposed use for at least 100 years; that the projected use is consistent with the management plan (i.e conservation requirement and recharge recovery criteria) and achievement of the safe-yield management goal for the AMA; and that the financial capability has been demonstrated to construct the water facilities necessary to make the supply of water available for the proposed use, including a delivery system and any storage facilities or treatment works. A.R.S. § 45-576(I).

In 1995, the Department adopted rules to carry out the purposes of the assured water supply statute. A.A.C. R12-15-701, *et seq.* The AWS Rules specify in detail what an applicant for a Certificate of AWS or a Designation of Assured Water Supply (Designation of AWS) must demonstrate. Of particular relevance to the municipal conservation program are the requirements for demonstrating that a proposed use is consistent with the management plan and achievement of the management goal for the AMA.

The AWS Rules state:

> In the Prescott Active Management Area, the proposed use of an applicant for a certificate of assured water supply or a designation of assured water supply is consistent with the achievement of the management goal of the active management area, regardless of the volume of groundwater withdrawn from within the active management area for the proposed use, until the director enters a final decision and order determining that the Prescott Active Management Area is no longer at safe-yield ....A.A.C. R12-15-705(B).

Under the AWS Rules, after the director collected three consecutive years of normalized information indicating that the AMA is mining groundwater, the director was required to make a determination that the AMA is no longer at safe-yield. A Preliminary Decision that the AMA is no longer at safe-yield was made on August 28, 1998 and the director issued the Final Decision and Order that the AMA is no longer at safe-yield on January 12, 1999, after a public hearing and review process was undertaken. Water providers and future subdivisions which apply to the Department for Designations or Certificates of Assured Water Supply are now required to acquire renewable water to meet the water needs of new development. A.A.C. R12-15-705(F).

### 5.4.1 Consistency With Management Goal

In order to demonstrate that a proposed use is consistent with the management goal of an AMA, the AWS Rules require applicants to demonstrate that renewable or imported supplies will be used to satisfy most of the water demand of the development or water service area for 100 years. A.A.C. R12-15-705. For a municipal provider in the Prescott AMA applying for a Designation of AWS, this means that most of the water demand customers in new subdivision will have to be met with water supplies other than mined groundwater from within the AMA.

### 5.4.2 Consistency with Management Plan

In order to demonstrate consistency with the AMA's management plan, the AWS Rules generally require that an applicant be in compliance with its management plan requirements. For municipal providers, the applicable management plan requirements are the municipal conservation requirements set forth in section 5.12 of this chapter. Thus, if a municipal provider applying for a Designation of AWS is regulated under the Total GPCD Program, the provider must either be in compliance with its total GPCD requirement or with the terms of a stipulation and consent order entered into to remedy non-compliance with the GPCD requirement in order to demonstrate consistency with the management plan.

An applicant for a Certificate of AWS is not subject to the municipal provider conservation requirements set forth in the management plan because the applicant is not a municipal provider as defined in A.R.S. § 45-561. However, certain uses that may be associated with a certificate application, such as turf-related facilities, large-scale cooling facilities, and landscaping or water features in publicly owned rights-of-way, are subject to the individual user requirements in sections 5-111(A) of the municipal conservation requirements if groundwater will be used. For all individual users, whether served by a designated or undesignated provider, either the entity delivering water or the individual user (e.g. homeowners association, turf-related facility owner, etc.) will be responsible for compliance with the individual user requirements.

The water use of a new subdivision will also affect a municipal provider's ability to meet its GPCD target. While individual users or the entity delivering water to them are responsible for meeting the individual user requirements, new subdivisions should be developed in a manner consistent with the conservation requirements in the management plan. This could be accomplished by some relatively simple and voluntary efforts by the certificate applicant or the homebuilder. A few examples are:

- Establish Conditions, Covenants, and Restrictions or other conditions that will limit landscaping within the subdivision
- Provide lot buyers with written water conservation information, including irrigation management of automatic irrigation timers
- Landscape model homes in accordance with Xeriscape™ principles
- Feature state of the art water conservation fixtures and appliances in model homes
- Limit high water use vegetation in common areas to those areas that provide significant recreational benefits
- Provide low water use landscaping packages to home buyers
- Design simple water harvesting features in landscaping designs
- Locate hot water heaters to minimize long hot water pipe runs or install looped systems
- Include community pools in large developments as an alternative to individual home pool installation

The application for a Certificate of AWS requires submittal of general information to allow the Department to estimate the water demand of the subdivision. This general information includes submittal of any

Conditions, Covenants, and Restrictions or other conditions that will limit exterior water demand and any proposed conservation practices, policies, devices, etc. that may be utilized.

#### 5.4.2.1 Consistency With Management Plan Criteria For Applicants For Certificates Of Assured Water Supply

Some subdivisions may include a golf course and other non-residential water uses. Demands associated with non-residential use are considered to be part of the subdivision offering if they will be part of the common promotional plan and they are covered by the official definition of a subdivision (A.R.S. § 32-2101). A golf course may be the single largest water use associated with a development. A person applying for a Certificate of AWS that includes a golf course within the development plan must demonstrate the following:

> That any new golf courses to be included within the development will be designed to comply with any applicable turf-related facility conservation requirements contained in Chapter 6 of this management plan. To make this demonstration, the applicant shall describe in its application the design and landscaping plans for any golf courses that will be included within the development.

When the AWS Rules are revised, more specific Consistency with Management Plan requirements for Certificates of AWS may be included.

### 5.4.3 Assured Water Supply Role in the Municipal Conservation Program

The AWS Rules are expected to result in reductions in groundwater use and greater reliance on renewable water supplies compared to what would have occurred without the rules in place. This will be a great benefit to the Prescott AMA, as groundwater supplies are held in the aquifer for future uses. However, maximizing the efficient use of all water supplies in the municipal sector is the role of the Municipal Conservation Program. As growth in the Prescott AMA continues, the stress on renewable supplies will also increase. The programs developed by the Department in the Third Management Plan are aimed at increasing the efficiency of water use in the municipal sector.

## 5.5 FIRST AND SECOND MANAGEMENT PLANS

For the First and Second Management Plans, the Department was required by statute to focus on per capita reductions as a mechanism to move the municipal sector towards safe-yield. Reductions in GPCD rates result in conservation of the groundwater supply that can be preserved for times of drought or reserved for future growth. To achieve reductions in per capita water use, the Total GPCD Program was established as the base program for all large municipal providers.

In developing the Total GPCD Program, the Department began with a very basic approach in the First Management Plan and moved to addressing the unique water use characteristics in the Second Management Plan. Through each management period, the Department has addressed water management concerns by including incentives for the use of renewable supplies, providing technical and financial assistance, and revising programs by updating data and assumptions using new information on current technologies and programs. In addition to the Total GPCD Program, voluntary alternative programs that are not based solely on per capita reductions were developed in the Second Management Plan for providers able to limit or reduce reliance on groundwater supplies. The intent of these programs is to allow demand flexibility if groundwater use is limited to a historic amount or reduced over time.

### 5.5.1 First Management Plan Approach

The approach to municipal conservation in the First Management Plan was a reduction from the base year GPCD rate for all water providers. The 1980 census population and total water use were used to calculate each provider's base year GPCD use rate. A First Management Plan total GPCD requirement was then calculated which, for providers with high per capita use (greater than 160 gallons per capita per day) in the base year was 12 percent lower than their base year GPCD rate. Providers with moderate per capita use (between 130 and 160 gallons per capita per day) were assigned a GPCD requirement which was 6 percent lower than their base year GPCD rate. The higher the base year GPCD rate, the greater the required reduction in per capita use. Providers at or below 130 GPCD in 1980 were not required to conserve further during the first management period, but were not permitted to use more than 130 GPCD. Additional requirements for distribution systems, individual users, and monitoring and reporting were also a component of the Municipal Conservation Program during the first management period.

Providers were given the opportunity to request a modification of their First Management Plan total GPCD requirement based on unique circumstances within their service area. Adjustments were granted for factors such as acquisition of all or a portion of another provider's service area, increasing non-residential uses within the service area not in existence when the requirements were adopted, and technical or factual errors made in calculating the requirements.

Both small and large municipal providers were regulated in the same manner in the first management period. Additionally, a special provider category was established for service areas which were dominated by non-residential/institutional uses (e.g., hospitals, schools, correctional facilities, or military installations) whose water use patterns and conservation potential could not be adequately characterized by per capita rates. The special provider program established a residential GPCD requirement along with non-residential measures commensurate to the use within the service area.

### 5.5.2 Second Management Plan Approach

During the development of the Second Management Plan, the Department recognized that the unique characteristics and growth patterns within each service area have a great influence on the provider's ability to reduce per capita use and help achieve the goal of safe-yield. It was recognized that new users should be more efficient than existing water users due to the installation of high-efficiency plumbing fixtures in new residences that comply with federal, state, and local ordinances.

The approach to setting GPCD requirements for large municipal providers in the Second Management Plan was based on an analysis of conservation potential for each service area using 1985 as the base year. Conservation potential for existing residential uses was estimated based on the comparison of existing water use patterns to assumed levels of savings associated with changing attitudes and implementation of selected conservation programs. Providers with relatively high GPCD rates were assumed to have greater conservation potential while those whose residential GPCD fell under a certain level were assumed to have minimal or no conservation potential. Estimated savings assumptions, based on documented conservation programs successfully applied in Arizona, California, and other regions in the United States, were then applied to the existing residential GPCD rate for each large municipal provider to develop a GPCD requirement for existing residential uses. New residential water users were assumed to come in at model use rates established by the Department for new residential housing based on the latest commercially available technology such as low-flow plumbing fixtures and low water use landscaping practices. Non-residential uses were held constant from base year non-residential water use levels with an additional seven percent reduction to be achieved by 2000. Lost and unaccounted for water was also held constant at base year levels, below a maximum of 10 percent.

Finally, a single total GPCD requirement was established for each large municipal provider combining the assumptions for existing residential, new residential, non-residential, and lost and unaccounted for water. Intermediate GPCD requirements were established for 1992 and 1995 to encourage providers to make progress in conservation efforts throughout the management period, with achievement of the final GPCD requirement in 2000.

Because non-residential uses continue to increase, and in most instances are not subject to assured water supply requirements limiting groundwater use, modifications to the total GPCD requirement for disproportionate increases in non-residential growth were not allowed in the Second Management Plan. Instead, the Department established the Alternative Conservation Program (ACP) which regulates providers based on a residential per capita requirement and the implementation of specific non-residential conservation measures. In order to participate in this more flexible program, providers were required to limit their groundwater withdrawals to a historic level, which required them to utilize renewable resources or retire groundwater rights to serve new demand. Additionally, providers that served predominantly non-residential/institutional uses were allowed to apply for the Institutional Provider Program (IPP), which replaced the special provider category established in the First Management Plan.

In the Second Management Plan, small municipal providers were not assigned a total GPCD requirement. Instead, because of their limited conservation potential and small proportion of overall municipal demand, small municipal providers were required to comply with the following requirements: minimize waste, maximize efficiency of outdoor watering, encourage reuse, and reduce the GPCD usage in their service areas.

### 5.5.3 Overview of Changes During the Second Management Period

Since 1990, the Second Management Plan has been modified twice. In general, changes were made to the municipal conservation program to provide incentives for the use of non-groundwater sources, to provide technical assistance to the regulated community, and to add a non-per capita conservation program. Additionally, a legislative change created an incentive for municipal providers to use groundwater withdrawn pursuant to approved remedial action projects.

#### 5.5.3.1 Management Plan Modifications

##### 5.5.3.1.1 First Modifications (1991):

An exclusion for the use of untreated Central Arizona Project (CAP) water was included in the first modification. Providers who were willing to make a commitment to ultimately serve effluent to a non-residential customer, but did not yet have access to or the ability to distribute effluent immediately, were allowed to serve untreated CAP water to the customer without having that water counted in the total GPCD rate for up to ten years. This incentive was adopted to encourage construction of the necessary nonpotable distribution lines before the effluent is available, to expedite the future use of effluent within the AMA.

The Conservation Assistance Program was adopted for the Second Management Plan to provide financial, planning, technical, and other support and services to all regulated sectors. Each year funds are used to support education, projects, and research that promote water conservation. The funds to support the grants program come from a portion of the groundwater withdrawal fees paid by all persons in the AMA that pump groundwater.

##### 5.5.3.1.2 Second Modification (1995):

Legislation passed in 1994 and incorporated into the second modification, redefined small municipal providers as those water providers serving 250 acre-feet or less of water annually. Previously, a small

municipal provider was defined as a water provider serving 100 acre-feet of water or less annually or a water provider that served a population of 500 or less people. The intent of this legislation was to allow the Department to focus its conservation efforts on providers with significant water use and greater conservation potential. In the Prescott AMA, passage of this legislation reduced the number of large providers from three to two.

The NPCCP, adopted by the Legislature in 1992, exempts qualified large municipal providers from per capita conservation requirements by substituting reasonable conservation measures (RCMs) targeting both residential and non-residential users. A.R.S. 45-565.01(A). Providers who elect to enter this program are required to reduce the use of mined groundwater in their service areas.

The second modification also included an incentive for the use of renewable supplies by allowing large municipal providers whose annual groundwater use is 30 percent or less of their total annual water use to remain at their Second Management Plan First Intermediate GPCD requirement. This incentive could be used in each year that the provider achieved the groundwater limitation standard of 30 percent or less, through the year 1999.

#### 5.5.3.2 Non-Management Plan Change

Non-management plan changes include a change in accounting of remediated groundwater in conservation requirement compliance determinations as a result of the Water Quality Assurance Revolving Fund legislation, legislation pertaining to the declaration of groundwater mining conditions in the Prescott AMA, and a change in the methodology used to determine water service area population.

##### 5.5.3.2.1 Water Quality Assurance Revolving Fund

In 1997, legislation was enacted providing an incentive for municipal providers to use groundwater withdrawn pursuant to approved remedial action projects. Prior to the passage of this bill, the withdrawal and use of groundwater, regardless of its quality, was counted as groundwater use in the determination of compliance with the management plan conservation requirements. This legislation requires the Department to account for remediated groundwater withdrawn pursuant to an EPA or ADEQ "approved remedial action project" in the same manner as surface water for determining compliance with the management plan conservation requirements. Thus, this groundwater is counted as surface water in the compliance determination (Laws 1997, Ch. 287, § 51(B).

##### 5.5.3.2.2 Determination of Safe-Yield Status and Related Legislation

In 1998 the State Legislature enacted legislation dealing with the potential declaration that the Prescott AMA is no longer at safe-yield. The legislation required the Department to initiate the administrative process to determine the AMA's safe-yield status, to adopt interim guidelines prohibiting mined groundwater from being used to demonstrate an assured water supply until a final decision on the AMA's safe-yield status, and to amend the Department's AWS Rules after a declaration that the AMA is no longer at safe-yield. The AWS Rules shall be amended to specify the volume of groundwater that a designated municipal provider may serve to subdivisions which were approved (according to criteria in the legislation) prior to the effective date of the legislation.

##### 5.5.3.2.3 Prescott AMA Service Area Population Calculation Methodology

The method of calculating service area population directly relates to the GPCD requirement assigned to a large municipal provider. For the Second Management Plan, the Prescott AMA determined that total water use, at 120 GPCD in 1985 (Second Management Plan baseline year), was 15 percent less than total water use in 1980 (First Management Plan baseline year). The AMA found that an overall AMA maximum

water use rate of 120 GPCD would be instrumental in achieving safe-yield by 2025. The conservation requirement of 120 GPCD was set for large municipal providers during the second management period.

The GPCD requirement of 120 is based on a specific method of calculating service area population. That population is then divided into the municipal provider's annual water use to determine the annual GPCD rate. Historically, however, the Prescott AMA has used a method to calculate service area population that is different from the other AMAs. For the second management period, the methodology used multiplied the persons per occupied household (total population ÷ occupied housing units) by the total number of housing units in the service area. This approach does not incorporate a vacancy factor. This approach also included group quarters in the calculation of persons per occupied household. This results in persons per occupied household figures that are higher than they would have been had group quarters not been included in the calculation.

As a result of the use of this methodology, GPCD use rates and requirements are lower than they would be compared to the method of estimating population used in other AMAs. If a method consistent with that used in other AMAs is employed, it would be unrealistic for a 120 GPCD target to be met by large municipal providers in the Prescott AMA during the third management period (2000-2010).

In compiling records and conducting research for the development of the Third Management Plan, a comparison of service area population estimates using the Prescott AMA methodology and the methodology used by the other AMAs was performed. It is important to note that even if a more standard method of estimating service area population is used, GPCD rates in the Prescott AMA would still be generally lower than the GPCD rates of municipal providers in other AMAs. Figure 5-1 compares historic GPCD rates of large municipal providers as a group between AMAs. (Note that Prescott AMA GPCDs have been adjusted for this figure to be consistent with the population estimation methodology used in the other four AMAs.)

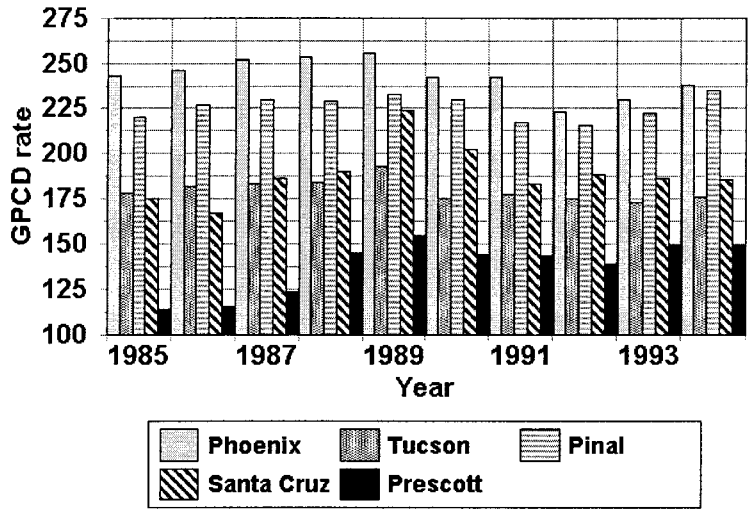
Part of the reason Prescott AMA's GPCD rates are lower than the other AMAs can be attributed to a cooler, wetter climate in the Prescott AMA than in other AMAs, but part of the reason may also be due to lower exterior (landscape) water use and less water intensive commercial and industrial customers in the Prescott AMA than in other AMAs. However, since the late 1980s, GPCD rates for large municipal providers in the Prescott AMA have been increasing.

Beginning with the first compliance date of the Third Management Plan, the service area population estimation methodology used in the Prescott AMA will be consistent with that used in the other AMAs. Since this will mean that GPCD rates will appear to increase, adjustments to GPCD requirements have been made. However, this does not mean that a relaxation of the implementation of conservation programs is warranted. In fact, increased diligence regarding conservation and augmentation will be necessary during the third management period as urbanization continues and municipal water demand correspondingly rises, in order to help the AMA minimize overdrafting of its groundwater supply.

## 5.6 MUNICIPAL PROGRAM ISSUES

Throughout the preparation of the Third Management Plan, extensive input from the water using community was obtained to identify the issues to be addressed in the development of the Third Management Plan. This section provides an overview of the issues raised by the Department and the AMA water providers.

**FIGURE 5-1**
**AVERAGE HISTORIC GPCD RATES**
**LARGE PROVIDERS**
**PRESCOTT ACTIVE MANAGEMENT AREA**




### 5.6.1 Private Water Company Issues

Some municipal water providers regulated under the Municipal Conservation Program are privately-owned companies separate from the city, town, or county in which they are located. While local plumbing and landscape ordinances may apply within the private water company service area, the water company itself lacks the authority to enact ordinances regulating water use by the citizens of these communities. In addition to being regulated by the Department, private water companies are regulated by the Arizona Corporation Commission (ACC), an elected body whose mission includes exercising exclusive state regulatory authority over public service corporations (public utilities) in the public interest. The ACC monitors the operations of approximately 350 private water utility companies throughout Arizona, reviewing company financial records and recommending revenue requirements and rates and charges to be collected. The regulatory responsibilities of the ACC are fully defined in Article XV of the Arizona Constitution and §§ 40-201, *et seq.*, Arizona Revised Statutes, including A.R.S. § 40-250, requiring that all public service corporations obtain ACC approval before establishing or changing any rate.

Private water companies have raised several issues regarding the relationship of the Department's requirements and the ACC's review of rate recovery associated with the requirements. The most significant issues identified include: (1) the perception of uncertainty in the ability to recover the holding costs of CAP subcontracts and financing the construction of facilities for receipt and use of renewable supplies and (2) the impact of the ACC's position in rate cases that implementation of conservation programs is discretionary, because the Department does not identify specific conservation programs or measures needed to be carried out by the provider.

These issues have been extensively reviewed and discussed by the Department staff, private water company representatives, and ACC staff. The ACC has indicated that "although they cannot guarantee recovery of costs prior to their incurrence" they would consider cost recovery for the use of renewable

supplies and the implementation of conservation measures, applying the principles of "used and useful" and "least-cost alternative." In the past, these principles have meant that a provider would have to be actively providing a resource in order to recover costs and any conservation measure implemented would have to be the most cost-effective before the recovery of costs would be allowed. Private water companies argue that these principles do not guarantee cost recovery as they are considered by the Commission on a case-by-case basis.

During the development of the Third Management Plan, the Department explored the possibility of establishing a municipal conservation program designed exclusively for private water companies. In order to meet the goals of the Department and obtain the support of the ACC, the Department considered a program that would mandate specific conservation measures and reduce reliance on groundwater supplies. Upon further examination, it was determined that additional statutory authority would be needed to implement such a program. It was decided by the Department not to pursue this action at this time. However, Department staff, with the cooperation of the regulated community, will continue to explore options, including continued dialogue between the two agencies aimed at establishing a united goal in achieving the most economically efficient reduction in reliance on mined groundwater by private water companies including providing more certainty of cost recovery for providers.

### 5.6.2 Renewable Water Supply Use Issues

In the first and second management periods, the management plans focused primarily on increasing water use efficiency through conservation regulations. However, increasing efficiency by itself will not allow for the achievement of safe-yield. Legislation adopted in 1998 established interim guidelines for new development in the Prescott AMA that restricted the use of groundwater to meet new subdivision demands. These guidelines were replaced by the AWS Rules on March 4, 1999 after the 60 day appeal period ended on the director's Final Decision and Order that the AMA is no longer at safe-yield. The AWS Rules will now require renewable or imported supplies for new subdivisions. Renewable or imported supplies available to Prescott AMA water providers include direct use and recharge of effluent, surface water supplies, and extinguishment of IGFRs. In addition, groundwater from the Big Chino Subbasin may also be imported into the AMA. Water use efficiency through conservation, increased direct use of renewable water (including effluent), restrictions on inappropriate uses of water, and artificial recharge are each critical to ensuring a secure and sustainable water supply. A number of municipal providers across the AMAs argue that these goals conflict or that they have insufficient resources to pursue both conservation and renewable supply acquisition and development simultaneously. Some have recommended that the use of renewable resources should be facilitated by exempting such deliveries from conservation requirements. However, long-term demand and supply projections indicate Prescott AMA municipal providers will not be able to continue to grow indefinitely relying on groundwater supplies. These projections also indicate that limited renewable supplies are available for use within the AMA, justifying the continued attention on efficient use of all water supplies. The Department recognizes the importance of encouraging the use of renewable supplies while continuing to stress that all available water supplies must be used efficiently through effective conservation programs in order to achieve the goal of the AMA.

A number of incentive programs for the use of renewable supplies were included in the Second Management Plan, and others are included in this plan (see Chapter 8). Several additional incentive options were considered for inclusion in the Third Management Plan. However, for many of the same reasons discussed in Chapter 6, additional incentives for renewable supply source utilization are not included in the plan.

### 5.6.3 Total Gallons Per Capita Per Day Program Issues

Municipal providers bear the responsibility of ensuring efficient water use by persons to whom they deliver water, including the following municipal use categories: single family (single family homes or mobile

homes on their own lots); multifamily (apartments, town homes, patio homes, duplexes, triplexes, and master metered permanent resident mobile home parks); commercial (shopping centers and malls); industrial (golf courses, cemeteries, factories, schools, and parks); government (city or county office buildings and associated grounds); and construction (dust control and metered fire hydrant use during road or highway work). Compliance is determined using the GPCD rate, which is compared to a GPCD requirement, set by the Department. This is accomplished after reviewing the existing and projected water uses within a municipal provider's service area, the average rate of loss, and the types of conservation programs that have been historically implemented, as well as the potential for future conservation.

When the Second Management Plan total GPCD requirements were assigned in 1990, the Department received numerous requests for administrative review across all five AMAs. Several issues were addressed including inaccurate population projections, disproportionate seasonal population increases, disproportionate increases in non-residential growth, and inaccurate assumptions for new residential growth (i.e., lot size and landscaping patterns).

Population projections for 1990, 1995, and 2000 were used in the Second Management Plan to calculate total GPCD requirements for each large municipal provider. Several issues surface when using population projections including: (1) the economic forecast at the time the projections are developed can artificially increase or decrease the projections; (2) the ratio of single family to multifamily projections can influence the achievement of the new residential component of the per capita requirements; and (3) the way a municipal provider actually grows in relation to the projections can make it easy or difficult for the municipal provider to achieve its requirements.

For the Third Management Plan, the Department did not use population projections to calculate GPCD requirements. Using a "component" method of adding actual new single family and multifamily population at efficient model water use rates will result in an annual GPCD requirement for municipal providers regulated under the Total GPCD Program and the ACP. This approach is discussed in more detail later in this chapter.

Seasonal visitors are people who reside in Arizona during part of the year but who do not claim residency in Arizona. Variations from year to year in seasonal population can skew GPCD rates to make it appear that water use is becoming more or less efficient. Municipal providers who can demonstrate a disproportionate increase in the dominance of seasonal population can request an administrative review of the annual population estimate.

Large lots with considerable landscapable areas tend to increase the residential GPCD because more water use is divided among fewer people than if development were of a higher density. Municipal providers with a disproportionate amount of large lots can also apply for administrative review.

Reporting service connections rather than housing units can lead to inconsistencies in the calculation of municipal provider water service area population which leads to a GPCD rate lower or in some cases higher than the more accurate method of reporting housing units. For this reason, in the Third Management Plan, the Department will continue to request that municipal providers annually report the number of housing units added to the service area, rather than new service connections.

For the municipal sector, the ratio of residential to non-residential demand can impact the GPCD rate of a municipal water provider. A change in the residential exterior demand from natural vegetation to designed landscapes with irrigation systems can impact the residential GPCD rate as well as increase residential water demand. Adding a large non-residential customer can drastically increase the overall demand within a service area and can negatively impact a municipal provider's ability to achieve compliance with the total GPCD requirement. However, the Department has established several mechanisms that will allow a large municipal provider to serve new large non-residential customers while remaining in compliance with its

municipal conservation requirements. First, direct use effluent or effluent recovered within the area of impact is not counted when determining a large municipal provider's compliance with its GPCD requirements. Therefore, if a large municipal provider served direct use effluent or effluent recovered within the area of impact to a new large non-residential customer, the additional water will not affect the municipal provider's ability to comply with its GPCD requirements. Second, the Department has developed alternative conservation programs for municipal providers with increasing non-residential uses if renewable supplies are used to meet new demand and, hence, mitigate the potential impact of the increased demand on groundwater supplies.

In the Third Management Plan, the Department will continue to maintain its position to not grant an increase in the GPCD requirements for disproportionate non-residential growth beyond a minimum non-residential use per capita. This is due to the availability of the alternative programs that allow municipal providers who have committed to the use of renewable supplies the flexibility to address this situation. However, the issue of inaccurate population projections is addressed in the Third Management Plan with the institution of the component GPCD requirement calculation methodology which relies on the actual annual population estimate to determine the GPCD requirement, instead of using projections.

For dealing with violations of the GPCD requirements, the option of extinguishing recharge credits or storing non-recoverable water in particular areas as a compliance mechanism may be considered during the third management period, even in advance of a violation. Municipal providers who anticipate an allotment violation are encouraged to develop a proactive response program in cooperation with the Department (see Chapter 10).

### 5.6.4 Residential User Issues

In the Prescott AMA, the potential for additional conservation among existing residential users is generally low since landscape watering is modest and replacement of interior plumbing fixtures already requires the installation of low water using devices per A.R.S. § 45-312. However, residential GPCD rates seem to be increasing in the Prescott AMA. This may be due to several factors which will need to be further evaluated during the third management period. These factors may include but are not limited to: change in household size in new units to something greater than the current (latest United States Census) service area average number of persons per household, installation of automatic sprinkler systems for landscape irrigation, increased installation of swimming pools or other high water use amenities in new homes, and additional showerheads or other fixtures in interior plumbing.

A considerable part of the residential demand in the Prescott AMA is met by exempt wells. Exempt wells usually serve one, or sometimes two, households in outlying areas where water service through a central distribution system is not available. As new developments occur in hardrock areas, exempt wells installed in such areas are prone to failure (see Exempt Wells map in Chapter 3). This leads to the assumption that eventually, in dry-lot subdivisions, or in other subdivisions on exempt wells, when the water level drops to a point where it is no longer economically feasible for homeowners to maintain their own water systems, an improvement district may be formed to install a central distribution system to serve a subdivision or subdivisions.

There is some concern that the number of exempt wells and their failure rate is not tracked by the Department. However, closer attention will be paid to exempt well water use, as feasible, during the third management period in order to help the AMA ascertain its progress towards safe-yield and to monitor the viability of exempt wells in certain locations.

## 5.7 THIRD MANAGEMENT PLAN MUNICIPAL CONSERVATION PROGRAM

Conservation requirements have been established pursuant to the statutory provisions of the Code for large municipal providers, small municipal providers, and large untreated water providers. This section will detail the requirements that have been developed for the Third Management Plan.

### 5.7.1 Conservation Requirements for Large Municipal Providers

The Department identified existing water use patterns and service area characteristics that influence a large municipal provider's water conservation potential in order to establish conservation requirements for large municipal providers in the Second Management Plan. Assumptions about future service area population growth and water supply and demand were also included in the analysis. This assessment was referred to as the "municipal provider profile." For the Third Management Plan, the Department used a similar approach to identify service area water use characteristics. Information was gathered through Annual Water Withdrawal and Use reports including water deliveries, monthly water use by sector, water source, and number of housing units added to the service area annually. Additional information included annual population estimates based on the municipal provider-supplied housing unit information from the annual reports, Arizona Department of Economic Security persons per housing unit data, and individual interviews with large municipal providers to assess existing water conservation programs to determine water conservation potential.

The Code requires additional reasonable reductions in per capita use by large municipal providers in the Third Management Plan. Pursuant to this statutory requirement, the Department will calculate a total GPCD requirement for each large municipal provider. Each large municipal provider will be noticed of its total GPCD requirements for its service area.

Municipal providers may apply for variance from or administrative review of the conservation requirements within 90 days after the notice is given. Alternatively, a large municipal provider may apply for one of the alternative conservation programs: the Non-Per Capita Conservation Program (NPCCP), the Alternative Conservation Program (ACP), or the Institutional Provider Program (IPP). Large municipal providers who do not apply for an alternative program will be regulated under the Total GPCD Program.

#### 5.7.1.1 Total Gallons Per Capita Per Day Program

As in previous management periods, the base municipal program for the Third Management Plan will be the Total GPCD Program. All large municipal providers regulated under this program must limit the annual gallons per capita per day water usage within its service area to the amount allowed under its total GPCD requirements.

For the third management period, an annual total GPCD requirement will be calculated using a "component method." The components of the total GPCD requirement are: existing residential use, new single family residential use, new multifamily residential use, non-residential use, and lost and unaccounted for water. Each component has an assigned per capita per day use rate as shown in Table 5-103.A and Section 5-103 of the Municipal Conservation Requirements at the end of this chapter. Each year, the sum of the per capita per day component volumes will be multiplied by the actual population in the service area in that year. The resulting allowable volume will be compared to the actual amount of water withdrawn, diverted, or received in the calendar year to determine compliance.

#### 5.7.1.1.1 Total Gallons Per Capita Per Day Program Development

##### 5.7.1.1.1.1 Analysis of Existing Residential Conservation Potential

Conservation potential, based on existing water use, is an estimate of the amount of a reduction in water use which can be achieved from implementing reasonable conservation measures or programs for each municipal provider. To determine the residential conservation potential of each large municipal provider in the Second Management Plan, the Department used two separate approaches. First, the Department established a base year for determining water use rates for existing water users. Next, models were developed to determine reasonable water use for future residential water users based on existing and proposed plumbing requirements and existing technology.

In the development of the Third Management Plan, staff conducted a detailed analysis of all assumptions used to generate the new residential models for the other four AMAs from the second management period. Information obtained from this analysis was used to update the technological and behavioral water use characteristic assumptions used in the models and prepare new models for the third management period more appropriate for the Prescott AMA.

An extensive inventory and analysis of available water conservation devices, measures, and programs was conducted for the Third Management Plan. The Department evaluated the information used to develop the Second Management Plan and adjusted the assumptions on water savings, market penetration, and installation rates based on new information. A summary was then prepared for each conservation measure, identifying potential water savings, costs, reliability, and historical use.

The Department analyzed the existence of conservation programs within each service area and additional conservation measures that could be implemented during the third management period. Even with the existence of current conservation measures, the Department assumes that there is still some potential for savings, even in service areas that have had programs in place. Water use for the years 1992 through 1995 for each large municipal provider was averaged and disaggregated into residential, non-residential, and lost and unaccounted for water use. The average water use for existing residential water users, single family and multifamily, was then identified. Next, four categories were established to express existing single family and existing multifamily conservation potential: no potential, minimum potential, moderate potential, or maximum potential. Table 5-2 shows the interior single family and multifamily GPCD, the single family gallons per housing unit per day (GPHUD), and the multifamily GPHUD used to determine a provider's conservation potential category. After the provider was determined to have no potential, minimum potential, moderate potential, or maximum conservation potential, a flat reduction of 0, 3, 5, or 7 percent was applied to each category, respectively. The reduction applied to each provider assumes the potential water savings for implementation of conservation measures commensurate with the provider's conservation potential. Finally, the water savings subtracted from the existing residential GPCD for each provider resulted in the existing residential component (see Table 5-103.A).

##### 5.7.1.1.1.2 Models For New Residential Users

For new residential water users (those residential users who begin to receive water from a municipal provider after 2000) the Department utilized a model-based approach similar to that used in the Second Management Plan in the other four AMAs. Current water fixture flow rates, existing technology, and behavioral patterns were evaluated and incorporated into the updated models for interior and exterior water use. In addition, several residential water use studies and surveys were conducted during the second management period resulting in more accurate Third Management Plan models.

**TABLE 5-2**
**EXISTING CONSERVATION POTENTIAL**
**PRESCOTT ACTIVE MANAGEMENT AREA**

| Category | Interior Single Family/Multifamily GPCD | Exterior Single Family GPHUD | Exterior Multifamily GPHUD |
|---|---|---|---|
| No Potential | 0 - 45 | 0 - 18 | 0 - 18 |
| Minimum Potential | 46 - 57 | 19 - 75 | 19 - 58 |
| Moderate Potential | 58 - 76 | 76 - 105 | 59 - 70 |
| Maximum Potential | > 76 | > 105 | > 70 |

GPCD = gallons per capita per day
GPHUD = gallons per housing unit per day

INTERIOR RESIDENTIAL WATER USE MODEL The interior model assumes the use of low flow plumbing fixtures (toilets, showerheads, and faucet aerators) consistent with the state and federal requirements, water-conserving clothes washers and dishwashers, and average behavioral patterns. It should be noted that low-flow toilet requirements are limited to 1.6 gallons per flush. However, to compensate for occasional double-flushing, which is sometimes necessary with these units, the model rate for toilets was adjusted to 1.7 gallons per flush. Additionally, behavioral patterns for duration and frequency of water use were evaluated based on data obtained from the Phoenix area and other areas of the United States. An additional category of miscellaneous water use was included for variables that the individual components did not address. As a result, an interior residential model use rate of 57 GPCD will be used as an interior target for all new residential water users through the third management period (see Table 5-3).

**TABLE 5-3**
**INTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT**
**SINGLE FAMILY & MULTIFAMILY**
**PRESCOTT ACTIVE MANAGEMENT AREA**

| Device | Model Assumption | Model Use Ratio |
|---|---|---|
| Toilet | 1.7 gallon/flush x 5 flushes/person/day | 9 GPCD |
| Shower | 7.9 minutes/shower x 2.5 gallons/minute x 0.9 shower/person/day | 18 GPCD |
| Bath | 32.5 gallons/bath x 0.1 bath/person/day | 3 GPCD |
| Faucets (Kitchen & Bathroom) | 2.5 gallons/minute x 4 minutes/person/day | 10 GPCD |
| Dishwasher | 9.8 gallons/load x 0.2 load/person/day | 2 GPCD |
| Clothes Washer | 30.3 gallons/load x 0.3 load/person/day | 9 GPCD |
| Miscellaneous | | 6 GPCD |
| **TOTAL** | | **57 GPCD** |

Note: Figures are rounded

EXTERIOR RESIDENTIAL WATER USE MODEL Models developed in the second management period for the other AMAs for exterior water use in new single family developments considered average

swimming pool demand, evaporative cooling demand, and efficient landscaping needs. The same approach, using updated information, is used in the Third Management Plan. Because exterior use is not dependent on the number of persons in the household, the exterior model is expressed in gallons per housing unit per day (GPHUD). The approach for the third management period assumes that the same potential exists for all new housing units to implement landscaping patterns appropriate to the local climate and practice efficient water application. Thus, a single model for all new single family residential development was used.

Demand for evaporative cooling, swimming pools, and landscaping were adapted from the Phoenix AMA evaporative cooler study, a telephone survey of swimming pool contractors in the Prescott AMA on average pool water use and installation rates, and landscaping consumptive use values obtained from average evapotranspiration (ETo) rates and rainfall for the Prescott AMA and from the University of Arizona Pima County Cooperative Extension Service. Landscape water use and landscaping design assumptions are based on the potential for the provider to promote the use of, provide incentives for, and educate new residents about the benefits of using low water use plants and practicing efficient landscape watering. Efficient landscape watering techniques include the use of drip irrigation systems and proper water application scheduling.

In addition to the evaporative cooler study, data obtained from a survey of common landscape patterns in new homes in the City of Prescott, Prescott Valley, and Chino Valley service areas were used in developing the exterior residential model. Although it is recognized that not all homeowners will meet the model use rate individually, it is anticipated that new per capita water use on average over an entire service area will conform to the model rate. It was assumed that new homes have the potential to implement appropriate landscaping practices and that providers have a stronger ability to influence a new homeowner's decisions than those in an established neighborhood.

The model rate for new single family exterior residential water use is 75 GPHUD in the Third Management Plan. The new multifamily exterior residential water use model is 58 GPHUD. Table 5-4 summarizes the assumptions used to develop the single family exterior water use model for the Third Management Plan. Table 5-5 summarizes the assumptions used to develop the exterior water use model for multifamily residential development. Details of the assumptions are contained in Appendix 5C.1-4.

#### 5.7.1.1.1.3 Analysis of Non-Residential Uses

In the Second Management Plan, the proportion of non-residential water use to residential water use was held constant from base year levels for each provider. It was assumed that providers would have the ability to utilize non-potable supplies for new non-residential uses such as turf-related facilities and landscaping within industrial and commercial facilities. Specifically, the direct use of effluent to serve these needs would allow a provider to remain in compliance with municipal conservation requirements. Providers were also given the option of entering the ACP or the NPCCP, which did not contain per capita requirements for non-residential use. The alternative program did place a limit on mined groundwater use, however.

Non-residential water use by the two large providers for the past eleven years was evaluated in the Prescott AMA. Non-residential water use has increased in the Prescott Valley Water District water service area 387 percent since 1987. The proportion of deliveries for non-residential use in Prescott Valley Water District's service area has increased ten percent, from 16 percent in 1987 to 26 percent of total deliveries in 1995. Non-residential deliveries in the Prescott service area have increased 39 percent since 1987, but unlike Prescott Valley Water District, the proportion of total deliveries for non-residential uses has remained fairly constant over time.

**TABLE 5-4**
**EXTERIOR WATER USE MODEL FOR NEW SINGLE FAMILY RESIDENTIAL DEVELOPMENT**
**PRESCOTT ACTIVE MANAGEMENT AREA**

| | **Model Use Rate** |
|---|---|
| Pool Use | 1 GPHUD |
| Spa Use | 0 GPHUD |
| Evaporative Cooling | 3 GPHUD |
| Landscape Watering | 71 GPHUD |
| **Single Family Residential Exterior Total** | **75 GPHUD** |

GPHUD = gallons per housing unit per day

**TABLE 5-5**
**EXTERIOR WATER USE MODEL FOR NEW MULTIFAMILY RESIDENTIAL DEVELOPMENT**
**PRESCOTT ACTIVE MANAGEMENT AREA**

| | **Model Use Rate** |
|---|---|
| Pool Use | 0 GPHUD |
| Spa Use | 0 GPHUD |
| Evaporative Cooling | 3 GPHUD |
| Landscape Watering | 55 GPHUD |
| **Multifamily Residential Exterior Total** | **58 GPHUD** |

GPHUD = gallons per housing unit per day

Potential for effluent reuse still exists within the municipal sector. The exclusion of direct use effluent or effluent recovered inside the area of impact from the total GPCD requirement will continue through the third management period. Providers will also continue to have the option of applying for the ACP or the NPCCP, neither of which limits the per capita water use for the non-residential sector. Because providers with disproportionate increases in non-residential water use are expected to enter the ACP or the NPCCP, a provider's non-residential GPCD component in the Third Management Plan will remain the same as assumed for the provider in the final GPCD requirements in the Second Management Plan.

#### 5.7.1.1.1.4 Lost and Unaccounted for Water

Large municipal providers must limit the amount of lost and unaccounted for water in their distribution systems during a year to no more than 10 percent of the total water withdrawn, diverted, or received in the year, except for direct use effluent (see Municipal Distribution System Requirements). In the Second Management Plan in the other four AMAs, conservation requirements were set assuming historical lost and unaccounted for water use rates held constant through the management period up to the limit of 10 percent. By doing so, providers with less than 10 percent lost and unaccounted for water were held to a figure below the standard throughout the second management period. For the third management period, providers will be allowed to include their actual lost and unaccounted for water, up to the 10 percent

maximum, each year when calculating the annual total GPCD requirement and will not be held to the lower historic rates.

#### 5.7.1.1.2 Total Gallons Per Capita Per Day Compliance

##### 5.7.1.1.2.1 Annual Population Estimates

In order to determine annual population rates, the Department requests, on an annual basis, an updated service area boundary from each large municipal provider delineating the areas within the service area that contain distribution lines, treatment facilities, and wells. These boundaries are updated and compared to the census tracts or enumeration districts determined by the Census Bureau. Annual service area population is based on the latest census which is broken down or disaggregated by unit type (single family, apartments, town homes, mobile home, and other) to determine the base housing unit counts for each service area. Each year the reported new units are added to the total housing units determined to exist within the service area boundary pursuant to the latest census, to derive the new total housing unit figure for the service area each year. Occupancy rates and persons per occupied housing unit rates are then calculated and used to determine the estimated service area population for each municipal provider.

##### 5.7.1.1.2.2 Flexibility Account

To account for variations in weather, the Department established a flexibility account in the Second Management Plan. The flexibility account allows large municipal providers regulated in the Total GPCD Program to accumulate 30 GPCD of credit or up to 10 GPCD of debit. This same approach will be used for determining the flexibility account balances for large municipal providers for the third management period.

##### 5.7.1.1.2.3 Compliance Calculation

A large municipal provider's compliance with its total GPCD requirement for a year will be determined by first calculating the total amount of water that the municipal provider is allocated for municipal use during the year. That amount is calculated by multiplying the municipal provider's total GPCD requirement for the year by the municipal provider's service area population for the year and then multiplying the product by the number of days in the year.

The amount of water allocated to the municipal provider for municipal use is then compared to the total amount of water from any source, except direct use effluent or effluent recovered within the area of impact, withdrawn, diverted, and received by the municipal provider for municipal use during the year. If the allocated amount is greater than the amount withdrawn, diverted, and received, the difference is credited to the municipal provider's flexibility account, subject to the maximum positive account balance. If the allocated amount is less than the amount withdrawn, diverted, and received, the difference is debited to the municipal provider's flexibility account. The large municipal provider is out of compliance for the year if the debit causes the flexibility account to exceed the maximum negative account balance.

### 5.7.1.2 Non-Per Capita Conservation Program

The NPCCP was added to the Second Management Plan in 1995 after being developed in cooperation with representatives of the water using community. This program requires a provider to implement specific conservation measures within its service area instead of requiring compliance with per capita conservation requirements. A provider in this program must implement reasonable conservation measures, or RCMs, for interior and exterior residential water uses and interior and exterior non-residential uses, as well as an education program. The RCMs must be designed to result in water use efficiency within the provider's service area equivalent to the water use efficiency assumed in the provider's total GPCD requirement. The

Department has established a list of standard RCMs which are designed to achieve an efficiency equivalent to the assumptions used in the Total GPCD Program. However, if the standard RCMs do not fit the service area characteristics of a provider, the program allows the provider the flexibility to substitute measures that are designed to achieve the same savings yet fit the unique characteristics of the provider's service area.

#### 5.7.1.2.1 Groundwater Use Reduction Requirement

The provider must meet one of the following requirements to be eligible to participate in the NPCCP: (1) the provider must be a member of a groundwater replenishment district, (2) the provider must be designated as having a 100 year assured water supply under the Department's AWS Rules, or (3) the provider must implement a plan to reduce mined groundwater withdrawals to zero by the year 2010 using a straight-line volumetric reduction.

#### 5.7.1.2.2 Reasonable Conservation Measures

A set of standard Residential, Non-Residential, and Education RCMs were developed by the Department with the aid of an advisory group made up of conservation program experts from the regulated community. Each RCM prescribes actions that must be taken by the provider to achieve water use efficiencies in each sector. Providers who have already implemented these measures will be required to implement additional conservation measures, consistent with the conservation potential for their service area, to qualify for the program. The Standard RCMs are outlined below. Additional substitute RCMs (Appendix 5D.4) were developed to allow a provider to develop a conservation program that meets the characteristics of its service area. In order for a provider to use a substitute RCM in place of a Standard RCM, the provider must apply to the director and demonstrate that the substitute RCM will be designed to achieve a water use efficiency equivalent to the Standard RCM.

Standard RCMs

**A. Residential Interior**

1. Water Audit and Fixture Retrofit Program for Existing Residential Customers
2. Ordinance or Condition of New Service Prohibiting Installation or Replacement of Plumbing Fixtures in Residential Housing Units Unless Fixtures Meet Water Savings Standards

**B. Residential Exterior**

1. Audit Program for Existing Residential Customers
2. Landscape Watering Advice Program for Existing and New Residential Customers
3. Ordinance or Condition of New Service for Model Homes in New Residential Developments
4. Prohibit the Creation of Covenants, Conditions, and Restrictions Which Require the Use of Water-Intensive Landscaping or Which Prohibit the Use of Low Water Use Landscaping in New Residential Developments
5. *One additional landscape RCM from the three below* ***(Choice of one of the following)***
   a) Ordinance or Condition of New Service Limiting Use of Turf and Other Water-Intensive Landscaping in New Multifamily Developments; **or**
   b) Ordinance or Condition of New Service Limiting Use of Turf and Other Water-Intensive Landscaping in Common Areas of New Single Family and Multifamily Developments; **or**
   c) Rebate Program for New Residential Customers

**C. Non-Residential Interior**

1. Interior Audit Program for Existing Facilities
2. Ordinance or Condition of New Service Prohibiting Installation or Replacement of Plumbing Fixtures in Non-Residential Facilities Unless Fixtures Meet Water Saving Standards
3. Distribution of Conservation Information to all New Non-Residential Customers and Submittal of Water Use Plan by New Large Facilities

**D. Non-Residential Exterior**

1. Exterior Audit Program for Existing Non-Residential Customers
2. Landscape Ordinance or Condition of New Service for New Facilities

**E. Education**

1. Public Information and Education Program

#### 5.7.1.2.3 Compliance with the Non-Per Capita Conservation Program

A large municipal provider regulated under the NPCCP is in compliance with the program if it implements the agreed to RCMs and limits its use of groundwater to the amount allowed under the AWS Rules or the amount allowed under the straight-line reduction, whichever is applicable. The Department will use the written agreement for the NPCCP to monitor progress with the program. Each year, along with the Annual Water Withdrawal and Use Report, the municipal provider will be required to submit a progress report describing the implementation of each RCM, the cost of implementing the program, estimated or actual water savings, and a description of any difficulties with the program.

### 5.7.1.3 Alternative Conservation Program

The ACP was developed for the Second Management Plan to give large municipal providers with disproportionately increasing non-residential water use an alternative to the Total GPCD Program. The ACP allows providers with disproportionately increasing non-residential water use the flexibility to serve those non-residential uses while achieving water use efficiency levels comparable to those set by the Total GPCD Program. The ACP consists of the following requirements that must be met by the provider: (1) groundwater use limitation, (2) residential GPCD requirement, and (3) non-residential RCMs.

#### 5.7.1.3.1 Groundwater Use Limitation Requirement

A provider regulated under the ACP must limit its annual groundwater use as follows: (1) If the provider is designated as having an assured water supply, it must limit its annual groundwater use to the amount it can use consistent with the AWS Rules; (2) If the provider is not designated as having an assured water supply, it must limit its annual groundwater use to its largest legal groundwater use during any one year from 1980 through 1989 if it was serving water on or before January 1, 1990, or to 50 percent of the largest legal groundwater use during any one year from January 1, 1990 through 1999 if it began serving water after January 1, 1990 but before January 1, 2000. A provider can achieve compliance with the groundwater use limitation requirement by permanently extinguishing grandfathered rights within the AMA, or by serving groundwater that will be replenished by a replenishment district, remediated groundwater that is accounted for as surface water under section 5-114 of the municipal conservation requirements, groundwater withdrawn outside of an AMA, or renewable supplies.

#### 5.7.1.3.2 Residential Gallons Per Capita Per Day Requirement

Each provider regulated under the ACP is required to comply with a residential GPCD requirement that is calculated using separate GPCD and GPHUD rates for existing residential, new single family, and new

multifamily water users. These rates are established from the conservation potential analysis used to calculate the residential portion of the total GPCD requirement. The residential GPCD requirement is recalculated annually based on growth within the service area using the same calculation used for the residential components of the Total GPCD Program.

#### 5.7.1.3.3 Non-Residential Reasonable Conservation Measures

Providers regulated under the ACP must implement specific conservation measures for non-residential water users. Providers who have already implemented these measures will be required to implement additional conservation measures to qualify for the program. The non-residential requirements for the Third Management Plan have been modified from the Second Management Plan to be identical to the non-residential requirements for the NPCCP. These requirements are as follows:

Standard Non-Residential RCMs

**A. Non-Residential Interior**

1. Interior Audit Program for Existing Facilities
2. Ordinance or Condition of New Service Prohibiting Installation or Replacement of Plumbing Fixtures in Non-Residential Facilities Unless Fixtures Meet Water Saving Standards
3. Distribution of Conservation Information to all New Non-Residential Customers and Submittal of Water Use Plan by New Large Facilities

**B. Non-Residential Exterior**

1. Exterior Audit Program for Existing Non-Residential Customers
2. Landscape Ordinance or Condition of New Service for New Facilities

Providers also have the added flexibility of requesting a substitute RCM for the non-residential requirements, which must be approved by the director.

#### 5.7.1.3.4 Compliance with the Alternative Conservation Program

The Department will use the written agreement for the ACP to monitor progress with the program. Each year, along with the Annual Water Withdrawal and Use Report, the municipal provider will be required to submit a progress report describing the implementation of each non-residential RCM, the cost of implementing the program, estimated or actual water savings, and a description of any difficulties with the program.

##### 5.7.1.3.4.1 Groundwater Use Limitation

A provider regulated under the ACP is in compliance with the groundwater use limitation requirement of the ACP if no more groundwater is used in the calendar year than is allowed pursuant to the provisions of the program.

##### 5.7.1.3.4.2 Residential Gallons Per Capita Per Day Requirement

Compliance with the residential GPCD requirement will be determined in a manner similar to the manner in which compliance with the total GPCD requirement is determined. A flexibility account will be established for the municipal provider at the time the provider enters the ACP. The maximum positive balance allowed in the account at any time is 21 GPCD, and the maximum negative balance allowed in the account at any time is 7 GPCD.

Following each year in which the municipal provider is regulated under the ACP, the total amount of water that the provider is allocated for residential use during the year will be calculated by multiplying the provider's residential GPCD requirement for the year by the provider's service area population for the year and then multiplying that product by the number of days in the year. That amount will then be compared to the total amount of water from any source, except direct use effluent or effluent recovered within the area of impact, delivered by the provider for residential use during the year. If the allocated amount is greater than the amount delivered for residential use during the year, the difference is credited to the provider's flexibility account, subject to the maximum positive account balance. If the allocated amount is less than the amount delivered for residential use during the year, the difference is debited to the provider's flexibility account. The provider is out of compliance with its residential GPCD requirement for the year if the debit causes the flexibility account to exceed the maximum negative account balance.

#### 5.7.1.3.4.3 Non-Residential Reasonable Conservation Measures

A provider regulated under the ACP is in compliance with the standard non-residential RCMs, or any substitute non-residential RCMs approved by the director, if it implements the agreed to non-residential RCMs.

### 5.7.1.4 Institutional Provider Program

The IPP replaced the First Management Plan special provider category. The IPP allows those providers with unique water use characteristics who are unable to economically utilize non-groundwater sources an avenue to participate in a program that focuses on the specific institutional water use characteristics of the service area. The IPP is designed for municipal providers who supply more than 90 percent of their total water deliveries to non-residential water users. Specifically, these non-residential uses include prisons, hospitals, military installations, airparks, and schools. Providers may request entrance into this program by submitting an application to the director at any time during the management period. If the request is approved, the provider will be assigned specific conservation measures for non-residential uses and a maximum residential GPCD. The Department will grant institutional provider designation only if the Total GPCD Program is not appropriate and the provider demonstrates that it cannot qualify for the ACP or the NPCCP by limiting its groundwater use, retiring grandfathered water rights, or using alternative sources of water.

## 5.7.2 Conservation Requirements for New Large Municipal Providers

A new large municipal provider is defined as a city, town, private water company, or irrigation district that begins serving more than 250 acre-feet of water for non-irrigation use per year after January 1, 2000. All new large providers will initially be assigned to the Total GPCD Program. Their total GPCD requirement will be calculated consistent with the component methodology used for existing large municipal providers. The Department will determine the base year for the municipal provider as the year preceding the year in which the provider began serving greater than 250 acre-feet per year, unless the director determines that water usage during that year is not representative of historic water use. Additionally, the Department will collect residential and non-residential water use data during the base year and the total gallons of water withdrawn, diverted, or received by the provider in the service area. Using an analysis of conservation potential for existing residential users, the Department will calculate a GPCD requirement for existing residential users. New residential development will be assigned the interior residential model use rates of 57 GPCD for new single family and multifamily water users and the exterior water use model of 75 GPHUD for new single family and 58 GPHUD for new multifamily exterior water use. The non-residential component rate will be set at the actual non-residential use up to 20 GPCD. The 20 GPCD figure is based on the average, minimum non-residential per capita rate in large municipal water provider service areas without large turf-related facilities in the AMAs. Twenty GPCD is considered the minimum amount of non-residential use necessary for commercial purposes within a large provider service area. Any

non-residential demand above this rate can be accommodated by either the ACP or the NPCCP. The annual amount of lost and unaccounted for water will be included in the component calculation up to 10 percent of the total water use in that year.

A new large provider may apply for an administrative review requesting a temporary adjustment to its total GPCD requirement in order to serve a turf-related facility. A temporary adjustment will be allowed if the provider demonstrates that direct use effluent or effluent recovered within the area of impact is committed to serve the turf-related facility beginning in four years, but a longer period is necessary for sufficient effluent to be produced to serve the entire facility. The adjustment will remain in effect only until sufficient direct use effluent or effluent recovered within the area of impact is available to serve the entire facility, not to exceed eight years, and may be adjusted as the volume of effluent use increases. The adjustment will be terminated if the infrastructure necessary to deliver the effluent is not in place at the beginning of the fourth year after the provider commences service to the facility. A permanent adjustment will not be granted to a new large municipal provider. If a new large municipal provider cannot serve a turf-related facility under its existing per capita requirement and direct use effluent or effluent recovered within the area of impact will not be physically available to serve the facility within a reasonable period of time, the provider may enroll in the Non-Per Capita Conservation Program or the Alternative Conservation Program, if it wishes to serve the facility.

### 5.7.3 Conservation Requirements for Consolidated Municipal Providers and Providers that Acquire or Convey a Portion of a Service Area

If two or more municipal providers consolidate their service areas or if a large municipal provider acquires a portion of another provider's service area, the consolidated provider, acquiring provider, or conveying provider will receive a recalculated or revised conservation requirement. A consolidated provider that qualifies as a large municipal provider will be assigned to the Total GPCD Program and its GPCD components will be calculated by prorating the respective per capita component targets, populations, and water use as appropriate. A consolidated provider may apply for the NPCCP or the ACP if one of the consolidated providers was regulated under one of these programs prior to the consolidation. The consolidated provider's application for the program must include only the information that has changed since the provider originally filed the application for the program. Providers that acquire or convey a portion of a service area continue to be regulated under the conservation program they were under prior to the acquisition or conveyance. However, if they were regulated under either they must reapply for regulation under that program within 180 days after the acquisition or conveyance and must submit only the information that has changed since the original application was filed.

### 5.7.4 Conservation Requirements for Small Municipal Providers

During the first management period, a small municipal provider was identified as a city, town, private water company, or irrigation district that serves less than 500 people and supplies less than 100 acre-feet of water for non-irrigation use during a year. In the First Management Plan, small providers were assigned a GPCD requirement in the same way as large providers. In 1992, the definition of a small provider was changed to a city, town, private water company, or irrigation district that supplies 250 acre-feet annually. Additionally, requirements for small providers were eased to allow a more flexible program to reduce per capita water use. During the third management period small providers will be required to minimize waste of all water supplies, maximize efficiency in outdoor watering, encourage reuse of water supplies, and reduce total gallons per capita per day usage.

### 5.7.5 Regulatory Requirements for All Municipal Providers

The following requirements have been established for all municipal providers: individual user requirements, distribution system requirements, and monitoring and reporting requirements. Each is described in this section.

#### 5.7.5.1 Individual User Requirements

An individual user is a person who receives water from a municipal provider for non-irrigation use. For the Third Management Plan, the director is required to establish "such other conservation measures as may be appropriate for individual users." A.R.S. § 45-566 (A)(2). In the Second Management Plan, individual user requirements were established for turf-related facilities, publicly owned rights-of-way, and large cooling towers. These requirements have been retained for the Third Management Plan with some modifications.

Turf-related facilities are subject to an allotment-based water use requirement. Landscaping planted after December 31, 1986 in publicly owned rights-of-way and watered with groundwater must be planted with plants from the Low Water Use Plant List (Appendix 5F). The cooling tower requirements have been modified from the Second Management Plan requirements which applied only to towers built after January 1, 1990 with a total capacity exceeding 250 tons. The Third Management Plan regulates both new and existing large-scale cooling facilities with a total capacity of 1000 tons or more.

In addition to these individual user requirements, the Third Management Plan contains an individual user requirement that was not included in the Second Management Plan. This additional requirement prohibits the use of groundwater to maintain a water feature installed in a publicly owned right-of-way after January 1, 2002.

Either the individual user or the municipal provider serving the individual user is responsible for complying with the individual user requirement. See section 5-111 for determining responsibility for compliance with the individual user requirements.

#### 5.7.5.2 Distribution System Requirements

Lost and unaccounted for water is defined as the total water from any source, except direct use effluent, withdrawn, diverted, or received in a year minus the total amount of authorized deliveries made by the municipal provider in that year. Lost and unaccounted for water includes line leakage, meter under-registration, evaporation or leakage from storage ponds or tanks, system and hydrant leaks or breaks, and illegal connections.

All municipal providers are required to meet an efficient lost and unaccounted for water standard in their service areas. Lost and unaccounted for water will be determined for each municipal provider based on the total quantity of metered and unmetered water deliveries and the total water pumped, received, or diverted by the municipal provider for each calendar year, excluding direct use effluent. Small municipal providers must maintain lost and unaccounted for water at or below 15 percent. Large municipal providers are required to maintain their system not to exceed 10 percent lost and unaccounted for water. Large untreated water providers are required to either line all canals used to deliver untreated water to the provider's delivery points with a material that allows no more lost water than a well-maintained concrete lining, or operate and maintain its distribution system to limit lost and unaccounted for water at or below 10 percent.

For the third management period, the Department will allow providers to exclude water from the lost and unaccounted for water calculation that is metered or estimated using approved estimating procedures and used pursuant to other regulatory requirements such as well purging and line flushing. Providers may also

exclude estimated water uses such as construction (truck loads for dust control) or fire services, but all other uses of water within a distribution system must be metered. Appendix 5G provides a complete list of uses that are considered in the lost and unaccounted for water calculation and those uses which can be estimated to determine the volume.

#### 5.7.5.3 Monitoring and Reporting Requirements

All municipal providers are required to annually: (1) report to the Department information on the total quantity of water used within the service area and the total volume of water delivered for various municipal purposes, (2) calculate the volume of lost and unaccounted for water within the service area, and (3) report the total number of housing units, by unit type, added to the service area from July 1 of the previous calendar year to July 1 of the reporting year.

Large municipal providers are required to separately measure and report the amount of water delivered each month for: irrigation uses; residential uses, separated by single family and multifamily; and non-residential uses, separated by water use categories, including turf-related facility use, commercial use, industrial use, government use, construction use, surface water treatment, and other uses.

All municipal providers are required to submit to the Department, on an annual basis, an updated water service area and distribution system map delineating all potable and nonpotable distribution lines greater than 4 inches, all potable treatment facilities, all well sites, and all nonpotable treatment.

Large municipal providers regulated under the NPCCP or the ACP are required to submit a progress report that includes an evaluation of the reasonable conservation measures in accordance with their written stipulated agreement.

## 5.8 INCENTIVES FOR THE USE OF RENEWABLE SUPPLIES AND REMEDIATED GROUNDWATER

Incentives have been developed to increase the use of non-groundwater supplies. For instance, effluent (directly used or stored underground and recovered from within the area of impact) and spill water are not counted in the annual per capita use rate for municipal providers regulated under the Total GPCD Program or the ACP.

In 1997, the Legislature enacted legislation significantly revising the Water Quality Assurance Revolving Fund (WQARF) program to provide incentives for the use of remediated groundwater to facilitate the treatment of contaminated groundwater. Among other things, the WQARF legislation provides that when determining compliance with management plan conservation requirements, the Department shall account for groundwater withdrawn pursuant to approved remedial action projects under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or Title 49, Arizona Revised Statutes, consistent with the accounting for surface water. Laws 1997, Ch. 287, § 51(B). See Chapter 7, section 7.4.4.6.3. Groundwater withdrawn pursuant to an approved remedial action project retains its legal character as groundwater for all other purposes under Title 45, Arizona Revised Statutes, including all other laws regulating groundwater withdrawal and use such as the assessment of withdrawal fees pursuant to A.R.S. § 45-611 *et seq.*, as well as laws regulating water exchanges as set forth in A.R.S. § 45-1001 *et seq.*, the transportation of groundwater as set forth in A.R.S. § 45-541 *et seq.*, withdrawals of groundwater for transportation to active management areas as set forth in A.R.S. § 45-551 *et seq.*, and underground water storage, savings, and replenishment as set forth in Title 45, Chapter 3.1, Arizona Revised Statutes.

For each approved remedial action project, the annual amount of groundwater that is eligible for the remediated groundwater accounting incentive is the maximum annual volume of groundwater that may be withdrawn pursuant to the project, as specified in the consent decree or other document approved by the

EPA or ADEQ. However, if the project was approved prior to June 15, 1999 and the maximum annual volume of groundwater that may be withdrawn pursuant to the project is not specified in a consent decree or other document approved by the EPA or ADEQ, the annual amount of groundwater that is eligible for the remediated groundwater accounting incentive is the highest annual use of groundwater withdrawn pursuant to the project prior to January 1, 1999. The director may modify the annual amount of groundwater that is eligible for the accounting incentive if an increase in withdrawals is necessary to further the purpose of the project or if a change is made to the consent decree or other document approved by the EPA or ADEQ.

In order to qualify for the remediated groundwater accounting incentive, a person must notify the director in writing of the anticipated withdrawal of the groundwater prior to its withdrawal. The notification must include a copy of a document approved by ADEQ or the EPA such as the Remedial Action Plan (RAP), Record of Decision (ROD). or consent decree. Unless specified in the document, the notification must include the volume of groundwater that will be pumped annually pursuant to the project, the time period to which the document applies, and the annual authorized volume of groundwater that may be withdrawn pursuant to the project. The notification must also include the purpose for which the remediated groundwater will be used and the name and telephone number of a contact person. Additionally, at the time the notice is given, the person must be using remediated groundwater pursuant to the approved remedial action or must have agreed to do so through a consent decree or other document approved by ADEQ or the EPA. Remediated groundwater which qualifies for the accounting must be metered and reported separately from groundwater that does not qualify for the accounting. (See section 5-114 of the Municipal Conservation Requirements).

## 5.9 NON-REGULATORY EFFORTS

The Department has a program for conservation assistance and augmentation of water supplies in the AMAs. Individual AMA programs focus on the areas of highest water conservation potential in each water use sector (municipal, industrial, and agricultural) based on total water usage, current water usage practices, and potential for implementation of new conservation technologies. Funding for the program comes from an annual withdrawal fee levied and collected from all large groundwater users in the AMAs. Since the Conservation Assistance/Augmentation (CAA) program began four years ago, the Prescott AMA has funded several projects that promote water conservation and prudent water management within the Prescott AMA.

During the third management period, funding will be used to assist water users in initiating conservation programs, in researching water conservation attitudes and water use practices, and in obtaining information on lost and unaccounted for water within municipal water service areas. Funding also will be available for hydrologic research to better determine water supply availability and to better characterize the nature of the aquifer and sources of supply.

## 5.10 SUMMARY AND CONCLUSIONS

The Third Management Plan Municipal Program includes conservation requirements for large municipal providers and small municipal providers. Large municipal providers are noticed of conservation requirement components for existing residential water use, new residential water use, non-residential water use, and lost and unaccounted for water use for the third management period. The components are used to calculate a total GPCD requirement for each calendar year based on growth within the large municipal provider's water service area. Large municipal providers may also apply for the ACP or the NPCCP if non-residential growth within the water service area occurs disproportionately to residential growth. Both of these alternative conservation programs require a limitation or reduction in the provider's use of groundwater in order to qualify. Small municipal providers are essentially required to reduce waste and improve water use efficiency within their water service areas during the third management period.

All municipal providers must comply with monitoring and distribution system requirements. Information on water use, growth, and system losses, for example, must be reported to the Department on an annual basis.

Many regulatory program and water management issues were raised by the Department and municipal providers during the development of the Third Management Plan. These issues include: the difficulties private water companies experience in implementing conservation programs and transitioning to the use of renewable water supplies; difficulties encountered with the use of a total GPCD requirement to regulate water use efficiency; the potential for and challenges of utilization of additional renewable supplies; and the relationship of the municipal sector to the achievement of the AMA goals. Addressing these issues may require additional legislation and management plan modifications during the third management period. Cooperation between the Department and municipal providers will result in solutions to these issues that improve water management within the AMA and lead to improved efficiency of use in the municipal sector.

## 5.11 FUTURE DIRECTIONS

A priority for the early years of the third management period will be working with municipal providers and communities throughout the AMA on short and long term water planning. Department staff will work with other parties to collect further hydrologic data and to expand the groundwater and surface water monitoring system. These additional data will be used to further refine the Department's hydrologic model and to work cooperatively with water providers to analyze alternative water supply scenarios.

Throughout the third management period, the Department will work to improve data collection on water demands and conservation measures. Additional analyses of municipal growth patterns will be performed. The Department will continue to collect information on the best available technologies for residential and non-residential water use. The Department will continue to quantify what a reasonable goal is for future reductions in municipal water use.

The relative contributions of conservation versus augmentation of water supplies to the goal of safe-yield will be evaluated. The effectiveness of conservation programs and the extent to which increasing efficiency of use can contribute to the overall goals of the AMA will also be evaluated. This may include focusing the conservation assistance program on municipal research or evaluation projects or increasing direct assistance to providers.

The Department will continue to explore the possibility of developing a separate Private Water Company Program during the third management period. Through discussions with the ACC, the Department will continue to develop policies related to water conservation and supply acquisition and foster an understanding with the ACC on a private water company conservation program and the ability to provide more assurance on the pass-through of costs associated with the required programs established by the Department.

## 5.12 MUNICIPAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS

### *5-101. Definitions*

*In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes, unless the context otherwise requires, the following words and phrases used in this chapter shall have the following meanings:*

1. *"Common area" means a recreational or open space area or areas owned and operated as a single integrated facility and maintained for the benefit of the residents of a housing development.*

2. *"Construction use" means a use of water for construction purposes, including the use of water for dust control, compaction and preparation of building materials on construction sites.*

3. *"Direct use effluent" means effluent that is transported directly from a facility regulated pursuant to Title 49, Chapter 2, Arizona Revised Statutes, to an end user. Direct use effluent does not include effluent that has been stored pursuant to Title 45, Chapter 3.1, Arizona Revised Statutes.*

4. *"Effluent recovered within the area of impact" means effluent that has been stored pursuant to Title 45, Chapter 3.1, Arizona Revised Statutes, and recovered within the stored effluent's area of impact. For purposes of this definition, "area of impact" has the same meaning as prescribed by A.R.S. § 45-802.01.*

5. *"Existing individual user" means an individual user that was receiving water from a municipal provider as of the date the Third Management Plan was adopted.*

6. *"Existing large municipal provider" means a large municipal provider that was in operation and was serving water on or before January 1, 2000.*

7. *"Existing non-residential customer" means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, a non-residential customer to whom the provider served water on the date the provider was accepted for regulation under the program.*

8. *"Existing residential customer" means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104, a residential customer to whom the provider served water on the date the provider was accepted for regulation under the program.*

9. *"Existing residential housing units" means housing units which first began using water prior to July 1, 2000.*

10. *"Existing residential population" means the portion of the service area population of a municipal provider that resides in existing residential housing units.*

11. *"Exterior water use" means non-residential or residential uses of water for landscaping, pools, evaporative cooling systems, decorative fountains and other outdoor uses of water.*

12. *"Extinguish" means, for the Alternative Conservation Program's groundwater use limitation requirement, to cause a grandfathered groundwater right to cease to exist through a formal process established by the director.*

13. *"GPCD" means gallons of water per capita per day.*

14. *"GPHUD" means gallons of water per housing unit per day.*

15. *"Housing unit" means a group of rooms or a single room occupied as separate living quarters. Housing unit includes a single family home, a patio home, a townhouse, a condominium, an apartment, a permanently set-up mobile home or a unit in a multifamily complex. Housing unit does not include a mobile home in an overnight or limited-stay mobile home park or a unit in a campground, motel, hotel or other temporary lodging facility. A housing unit may be occupied by a family, a family and unrelated persons living together, two or more unrelated persons living together, or by one person.*

16. *"Incidental recharge" and "incidental recharge factor" have the definitions prescribed by A.R.S. § 45-561.*

17. *"Individual user" means a person receiving water from a municipal provider for non-irrigation uses to which specific conservation requirements apply, including turf-related facilities, large-scale cooling facilities, and publicly-owned rights-of-way.*

18. *"Interior water use" means non-residential or residential indoor uses of water, including toilet flushing, bathing, drinking, and washing.*

19. *"Landscapable area" means the entire area of a lot less any areas covered by structures, parking lots, roads and any other area not physically capable of being landscaped.*

20. *"Large municipal provider" means a municipal provider serving more than 250 acre-feet of water for non-irrigation use during a calendar year, not including untreated water served by a municipal provider that qualifies as a large untreated water provider.*

21. *"Large-scale cooling facility" means a facility which has control over cooling operations with a total combined cooling capacity greater than or equal to 1,000 tons. For the purposes of this definition, the minimum cooling tower size which shall be used to determine total facility cooling capacity is 250 tons. A large-scale cooling facility does not include a large-scale power plant that utilizes cooling towers to dissipate heat.*

22. *"Lost and unaccounted for water" means the total quantity of water from any source, except direct use effluent, withdrawn, diverted or received by a municipal provider during a calendar year less the total quantity of authorized deliveries of water from any source, except direct use effluent, made by the municipal provider during the calendar year that are metered deliveries or deliveries that the municipal provider accounts for by a method of estimating water use approved by the director.*

23. *"Lost water" means untreated water from any source that enters an untreated water distribution system and is lost from the system during transportation or distribution due to seepage, evaporation, leaks, breaks, phreatophyte use or other similar or dissimilar causes.*

24. *"Mined groundwater" has the definition prescribed by A.R.S. § 45-561, section 5-103, subsection D.*

25. *"Multifamily housing unit" means a mobile home in a mobile home park and any permanent housing unit having one or more common walls with another housing unit located in a multifamily residential structure, and includes a unit in a duplex, triplex, fourplex, condominium development, town home development, or apartment complex.*

26. *"Municipal distribution system" means a system of pipes, canals or other works within a municipal provider's service area which are owned and operated by the provider to collect, store, treat or deliver water for non-irrigation use.*

27. *"Municipal provider" means a city, town, private water company or irrigation district that supplies water for non-irrigation use.*

28. *"New individual user" means an individual user that begins receiving water from a municipal provider after adoption of the Third Management Plan.*

29. *"New large municipal provider" means a municipal provider that begins serving more than 250 acre-feet of water for non-irrigation use during a calendar year after January 1, 2000, not including untreated water served by a municipal provider that qualifies as a large untreated water provider.*

30. *"New multifamily housing units" means multifamily housing units which first begin using water on or after July 1, 2000.*

31. *"New multifamily population" means the portion of the service area population of a municipal provider that resides in new multifamily housing units.*

32. *"New non-residential customer" means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, a non-residential customer that begins receiving water from the provider after the provider is accepted for regulation under the program.*

33. *"New residential customer" means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104, a residential customer that begins receiving water from the provider after the provider is accepted for regulation under the program.*

34. *"New single family housing units" means single family housing units which first begin using water on or after July 1, 2000.*

35. *"New single family population" means the portion of the service area population of a municipal provider that resides in new single family housing units.*

36. *"Non-residential customer" means a person who is supplied water by a municipal provider for a non-irrigation use other than a residential use.*

37. *"Non-residential exterior water use" means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, water supplied by the*

*provider and used for exterior water use purposes by non-residential customers, other than individual users, within the provider's service area.*

38. *"Non-residential interior water use" means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, water supplied by the provider and used for interior water use purposes by non-residential customers, other than individual users, within the provider's service area.*

39. *"Reasonable Conservation Measures" or "RCMs" means policies, practices, rules, regulations, ordinances, or the use of devices, equipment or facilities, that meet either of the following criteria:*

    a. *An established and generally accepted practice among water providers that results in efficient use or conservation of water, or*

    b. *A practice for which sufficient data are available from existing water conservation projects to indicate that significant water conservation or conservation related benefits can be achieved; that the practice is technically and economically reasonable and not environmentally or socially unacceptable; and that the practice is not otherwise unreasonable for most water providers to implement.*

40. *"Residential customer" means a person who is supplied water by a municipal provider for a residential use.*

41. *"Residential exterior water use" means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104, water supplied by the provider and used for exterior water use purposes by residential customers within the provider's service area.*

42. *"Residential interior water use" means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104, water supplied by the provider and used for interior water use purposes by residential customers within the provider's service area.*

43. *"Residential use" means a non-irrigation use of water related to the activities of a single family or multifamily housing unit or units, including exterior water use.*

44. *"Service area" has the definition prescribed by A.R.S. § 45-402.*

45. *"Service area population" means the number of people residing in housing units connected to distribution lines maintained by the municipal provider within its service area which are being served as of July 1 of the applicable year, as determined pursuant to section 5-103, subsection D.*

46. *"Service connection" means a coupling of a municipal provider's distribution system and its customer's water system.*

47. *"Single family housing unit" means a detached dwelling, including mobile homes not in mobile home parks.*

48. *"Small municipal provider" means a municipal provider that supplies 250 acre-feet or less of water for non-irrigation use during a calendar year, not including untreated water served by a municipal provider that qualifies as a large untreated water provider.*

49. *"Turf-related facility" means any facility, including a school, park, cemetery, golf course, or common area of a housing development, with a water-intensive landscaped area of ten or more acres.*

50. *"Water-intensive landscaped area" means, for a calendar year, an area of land which is watered with a permanent water application system and planted primarily with plants not listed in Appendix 5F (Low Water Use Plant List or modifications to the list), and the total surface area of all bodies of water filled or refilled with water from any source, including effluent, that are an integral part of the landscaped area. Bodies of water used primarily for swimming purposes are not an integral part of a landscaped area.*

### *5-102. Large Municipal Providers - Conservation Programs*

***A.*** *Beginning with the calendar year determined under Section 5-103, subsection A, paragraph 2, and continuing until the first compliance date for any substitute requirement in the Fourth Management Plan, a large municipal provider shall be regulated under the Total Gallons Per Capita Per Day (GPCD) Program described in section 5-103, unless the provider has applied for and been accepted for regulation under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, or is designated as an institutional provider under section 5-108.*

*If a large municipal provider is accepted into the Non-Per Capita Conservation Program, the Alternative Conservation Program, or is designated as an institutional provider, the provider shall continue to comply with its total GPCD requirement until the first compliance date assigned by the director for the provider under the Alternative Conservation Program, the Non-Per Capita Conservation Program, or the Institutional Provider Program.*

***B.*** *A large municipal provider may apply for the Non-Per Capita Conservation Program as described in section 5-104. If the director approves the application, the provider shall comply with the requirements of the Non-Per Capita Conservation Program beginning on a date determined by the director but not later than January 1 of the year following the year in which the application is approved.*

***C.*** *A large municipal provider may apply for the Alternative Conservation Program as described in section 5-105. If the director approves the application, the provider shall comply with the requirements of the Alternative Conservation Program beginning on a date determined by the director but not later than January 1 of the year following the year in which the application is approved.*

***D.*** *A large municipal provider may apply for designation as an institutional provider pursuant to section 5-108. If the director approves the application, the provider shall comply with the institutional provider requirements assigned by the director beginning on a date determined by the director but not later than January 1 of the year following the year in which the application is approved.*

*E.* *All municipal providers shall comply with individual user requirements, distribution system requirements, and applicable monitoring and reporting requirements as prescribed in sections 5-111, 5-112, and 5-113.*

## *5-103. Large Municipal Provider Total Gallons Per Capita Per Day Program*

### *A. Total Gallons Per Capita Per Day Requirement*

1. *Beginning with calendar year determined under paragraph 2 of this subsection, and for each calendar year thereafter until the first compliance date for any substitute municipal conservation requirement in the Fourth Management Plan, a large municipal provider regulated under the total GPCD program shall not withdraw, divert or receive water from any source, except direct use effluent and effluent recovered within the area of impact, for non-irrigation use during a year in a total amount that exceeds its total GPCD requirement for the year as calculated in subsection B of this section, except as provided in the flexibility account provisions in section 5-106.*

2. *A large municipal provider regulated under the Total GPCD Program shall begin complying with its total GPCD requirement under the Third Management Plan beginning with calendar year 2000, except that if the provider's total GPCD requirement for the year 2000 under the Third Management Plan is lower than the provider's final total GPCD requirement under the Second Management Plan, the provider shall begin complying with its total GPCD requirements under the Third Management Plan beginning with calendar year 2002.*

### *B. Calculation of the Annual Total Gallons Per Capita Per Day Requirement*

*A large municipal provider's total GPCD requirement for a year shall be calculated as follows:*

1. *For each calendar year 2000 through 2004, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of this section, by the first intermediate GPCD component for existing residential population as assigned to the provider in Table 5-103.A.*

   *For calendar years 2005 through 2009, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of this section, by the second intermediate GPCD component for existing residential population as assigned to the provider in Table 5-103.A.*

   *For the calendar year 2010, and for each calendar year thereafter until the first compliance date for any substitute total GPCD requirement in the Fourth Management Plan, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of this section, by the final GPCD component for existing residential population as assigned to the provider in Table 5-103.A.*

2. *Multiply the provider's new single family population for the year, as calculated pursuant to subsection D of this section, by 57 GPCD.*

3. *Multiply the number of new single family housing units within the provider's service area as of July 1 of the calendar year in question by 75 GPHUD.*

4. *Multiply the provider's new multifamily population for the year, as calculated pursuant to subsection D of this section, by 57 GPCD.*

5. *Multiply the number of new multifamily housing units within the provider's service area as of July 1 of the calendar year in question by 58 GPHUD.*

6. *Multiply the provider's total service area population for the year, as calculated pursuant to subsection D of this section, by the GPCD component for non-residential use as assigned to the provider in Table 5-103.A.*

7. *Divide the provider's allowable lost and unaccounted for water by the number of days in the calendar year. The provider's allowable lost and unaccounted for water is the lesser of the following:*

   a. *the provider's actual lost and unaccounted for water for the year, in gallons.*

   b. *an amount calculated by multiplying the total gallons of water from any source, except direct use effluent withdrawn, diverted or received by the provider during the year by 10 percent.*

8. *Add the results from paragraphs 1 through 7 of this subsection, and then divide the sum by the provider's annual service area population as of July 1 of that year. The quotient is the provider's total GPCD requirement for the calendar year.*

***C. Compliance with Total Gallons Per Capita Per Day Requirement***

*The director shall determine if a large municipal provider is in compliance with its total GPCD requirement for a calendar year pursuant to the flexibility account provisions in section 5-106, using the provider's service area population as calculated in subsection D of this section.*

***D. Calculation of Large Municipal Provider's Service Area Population***

*The director shall calculate a large municipal provider's service area population for a calendar year as follows, unless the director has approved an alternative methodology for calculating the provider's service area population prior to the calendar year in question:*

1. *Determine the number of existing single family housing units and existing multifamily housing units served by the provider's distribution system as of July 1, 2000, less any existing single family housing units and any existing multifamily housing units removed from the provider's distribution system between July 1, 2000 and June 30 of the calendar year in question.*

2. *Adjust these totals by the respective average annual vacancy rate for single family housing units and multifamily housing units as calculated from the most recent census or other approved source of information.*

3. *Multiply the adjusted number of existing single family housing units calculated in paragraph 2 of this paragraph by the average number of persons per occupied single family housing unit as calculated in accordance with the most recent census or other approved source of information.*

4. *Multiply the adjusted number of existing multifamily housing units calculated in paragraph 2 of this subsection by the average number of persons per occupied multifamily housing unit as calculated in accordance with the most recent census or other approved source of information.*

5. *Add the products from paragraphs 3 and 4 of this subsection. The sum is the provider's existing residential population.*

6. *Determine the number of new single family housing units and new multifamily housing units added to the provider's distribution system between July 1 of the previous calendar year and July 1 of the calendar year in question, less any new single family and new multifamily housing units removed from the system during that period.*

7. *Adjust these totals by the respective average annual vacancy rate for single family housing units and multifamily housing units as calculated from the most recent census or other approved source of information.*

8. *Multiply the adjusted number of new single family housing units calculated in paragraph 7 of this subsection by the average number of persons per occupied single family housing unit as calculated in accordance with the most recent census or other approved source of information.*

9. *Multiply the adjusted number of new multifamily housing units calculated in paragraph 7 of this subsection by the average number of persons per occupied multifamily housing unit as calculated in accordance with the most recent census or other approved source of information.*

10. *Add the product from paragraph 8 of this subsection to the provider's new single family population as of July 1 of the previous year and add the product from paragraph 9 of this subsection to the provider's new multifamily population as of July 1 of the previous year. The sums are the provider's new single family population and new multifamily population.*

11. *Add the results from paragraphs 5 and 10 of this subsection. The sum is the provider's service area population for the calendar year.*

**TABLE 5-103.A**
**EXISTING RESIDENTIAL AND NONRESIDENTIAL GPCD COMPONENTS**
**PRESCOTT ACTIVE MANAGEMENT AREA**

| | First Intermediate GPCD Component for Existing Residential Population (2002-2004) | Second Intermediate GPCD Component for Existing Residential Population (2005-2009) | Final GPCD Component for Existing Residential Population (2010-Fourth Management Plan) | GPCD Component for Nonresidential Use |
|---|---|---|---|---|
| City of Prescott | 92 | 91 | 89 | 49 |
| Prescott Valley Water District | 94 | 92 | 91 | 29 |

## *5-104. Non-Per Capita Conservation Program*

### *A. Eligibility for the Non-Per Capita Conservation Program*

*A large municipal provider may apply for the Non-Per Capita Conservation Program if any of the following applies:*

1. *The provider is a member of a groundwater replenishment district established under Title 48, Chapter 27, Arizona Revised Statutes.*

2. *The service area of the provider has qualified as a member service area under Title 48, Chapter 22, Arizona Revised Statutes, or as a water district member under Title 48, Chapter 28, Arizona Revised Statutes, and the conditions established under A.R.S.§ 45-576.01(B)(2) and (3) are met by the conservation district or the water district, as applicable, for the AMA in which the service area is located.*

3. *The provider has developed a plan to both:*

    a. *Reduce the proportion of mined groundwater supplied by it for use within its service area such that the result computed by dividing the volume of mined groundwater supplied by the provider for use within its service area in a year by the volume of all water supplied by the provider for use within its service area in that year does not exceed:*

        *1) Two-thirds for 2000.*
        *2) Three-fifths for 2001.*
        *3) Eight-fifteenths for 2002.*
        *4) Seven-fifteenths for 2003.*
        *5) Two-fifths for 2004.*
        *6) One-third for 2005.*
        *7) Four-fifteenths for 2006.*
        *8) One-fifth for 2007.*
        *9) Two-fifteenths for 2008.*
        *10) One-fifteenth for 2009.*

    b. *Deliver no mined groundwater for use within its service area after January 1, 2010.*

4. *The provider is designated as having an assured water supply under rules adopted by the director pursuant to A.R.S. § 45-576.*

### *B. Application for Non-Per Capita Conservation Program*

*A large municipal provider's application for the Non-Per Capita Conservation Program must be approved by the provider's governing body, and must include the following:*

1. *A description and evaluation, including implementation dates, of the provider's existing conservation programs.*

2. *A description of conservation programs the provider intends to implement if approved for the Non-Per Capita Conservation Program, including a time schedule for implementing the programs.*

3. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 3, a water supply plan demonstrating that the provider will reduce the proportion of mined groundwater supplied by it within its service area to the proportions described in that subparagraph, and that it will deliver no mined groundwater after January 1, 2010.*

4. *If the provider intends to comply with subsection D of this section by implementing one or more substitute RCMs in lieu of a standard RCM, or if the provider requests the director to modify a level of conservation potential for the provider's service area pursuant to subsection D, paragraph 1, subparagraph a of this section, an analysis of water use within the provider's service area which includes all of the following:*

   a. *If the provider intends to implement one or more substitute RCMs, information demonstrating that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM or RCMs.*

   b. *The amount of water used each month during the past three years by each of the following water use sectors, as applicable: (1) residential (disaggregated by single family and multifamily), (2) commercial, (3) industrial, (4) turf-related facilities, (5) government, (6) construction, (7) distribution system losses, and (8) any other uses. The provider is not required to include this information if it has already been reported to the Department.*

   c. *An identification and evaluation of the water use sectors described in item b) of this subparagraph that have the highest water conservation potential.*

5. *If the provider is requesting an individual incidental recharge factor under subsection C, paragraph 2 of this section:*

   a. *A copy of a hydrological study which demonstrates the amount of water withdrawn, diverted or received for delivery by the provider for use within its service area during each of the preceding five years and the amount of incidental recharge that was attributable to the provider during those years. The study shall be prepared consistent with the methodology contained in Appendix 5E.*

   b. *A copy of a hydrological study projecting the average annual amount of water that will be withdrawn, diverted or received for delivery by the provider for use within its service area during the management period and the average annual amount of incidental recharge that will be attributable to the provider during the management period.*

6. *Any other information required by the director.*

## *C. Incidental Recharge Factor*

*1. Standard Incidental Recharge Factor*

*The standard incidental recharge factor for the Prescott AMA for the third management period is zero percent (0%). The standard incidental recharge factor shall be used to calculate the amount of mined groundwater supplied during a year by a large municipal provider that applied for the Non-Per Capita Conservation Program under subsection A,*

*paragraph 3 of this section, unless the provider applies for and is granted an individual incidental recharge factor pursuant to paragraph 2 of this subsection.*

2. *Individual Incidental Recharge Factor*

*A municipal provider that applies for the Non-Per Capita Conservation Program under subsection A, paragraph 3 of this section may request an incidental recharge factor that is different than the standard incidental recharge factor set forth in paragraph 1 of this subsection by submitting the information described in subsection B, paragraph 5 of this section with its application. The director shall establish a different incidental recharge factor for the provider, as described in Appendix 5E, if the information submitted by the provider demonstrates that the ratio of the average annual amount of incidental recharge expected to occur within the provider's service area during the third management period to the average annual amount of water expected to be supplied by the provider for use within its service area during the third management period is different than the standard incidental recharge factor. If the director establishes an individual incidental recharge factor for the provider under this paragraph, the individual incidental recharge factor shall be used to calculate the amount of mined groundwater supplied by the provider during a year.*

***D. Criteria for Approval of Application***

*A large municipal provider that applies for the Non-Per Capita Conservation Program shall be approved for the program only if all of the following conditions are satisfied, as applicable:*

1. *The provider agrees in writing to implement RCMs that the director determines will, if properly implemented, result in the achievement of a water use efficiency within the provider's service area equivalent to the water use efficiency assumed in the provider's total GPCD requirements for the third management period. To comply with this requirement, the provider must agree in writing to implement the following RCMs for the following water use categories and programs beginning on a date agreed upon by the director and the provider:*

   a. *Residential Water Use*

      1) *<u>Residential interior water use category</u> - The provider shall agree in writing to implement the residential interior standard RCMs described in Appendix 5D.1. In lieu of implementing one or both of the standard RCMs, the provider may agree to implement one or more of the residential interior substitute RCMs or system-related substitute RCMs listed in the substitute RCM list described in Appendix 5D.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*

      2) *<u>Residential exterior water use category</u> - The provider shall agree in writing to implement the residential exterior standard RCMs described in Appendix 5D.1. In lieu of implementing one or more of the standard RCMs, the provider may agree to implement one or more of the residential exterior substitute RCMs or system-related substitute RCMs listed in the substitute RCM list described in Appendix 5D.4 if the director determines that the substitute RCM or RCMs will be designed*

*to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*

3) *Implementation level - The provider shall agree to implement residential interior or exterior RCMs for existing residential customers at the implementation level (minimum, moderate or maximum) that corresponds to the level of conservation potential that the director determined existed for interior and exterior water use by existing residential users within the provider's service area when the director established the provider's total GPCD requirements for the third management period, as shown in Table 5-104.D.*

*The director may modify a level of conservation potential shown for a provider in Table 5-104.D if the provider requests a modification in an application for administrative review pursuant to A.R.S. § 45-575(A) or in the provider's application for regulation under the Non-Per Capita Conservation Program, and the provider demonstrates that the level of conservation potential shown in Table 5-104.D is not accurate for the provider's service area. A provider requesting a modification of a level of conservation potential shall submit to the director a water use analysis containing the information described in subsection B, paragraph 4, of this section.*

**TABLE 5-104.D**
**EXISTING RESIDENTIAL CONSERVATION POTENTIAL**
**PRESCOTT ACTIVE MANAGEMENT AREA**

| Large Municipal Provider | Existing Conservation Potential |
|---|---|
| City of Prescott | Minimum |
| Prescott Valley Water District | Minimum |

b. *Non-Residential Water Use*

1) *Non-residential interior water use category - The provider shall agree in writing to implement the non-residential interior standard RCMs described in Appendix 5D.2. In lieu of implementing one or more of the standard RCMs, the provider may agree to implement one or more of the non-residential interior substitute RCMs or system-related RCMs listed in the substitute RCM list described in Appendix 5D.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*

2) *Non-residential exterior water use category - The provider shall agree in writing to implement the non-residential exterior standard RCMs described in Appendix 5D.2. In lieu of implementing one or both of the standard RCMs, the provider may agree to implement one or more of the non-residential exterior substitute RCMs or system-related RCMs listed in the substitute RCM list described in Appendix 5D.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*

c. *Public Education Program*

*The provider shall agree in writing to implement the education standard RCM described in Appendix 5D.3. In lieu of implementing the standard RCM, the provider may agree to implement one or more of the education substitute RCMs listed in the substitute RCM list described in Appendix 5D.4. The substituted RCM or RCMs must not duplicate other RCMs that the provider will implement as part of the Non-Per Capita Conservation Program.*

2. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 1 of this section, the provider will be accepted into the program only if the conditions established in A.R.S. § 45-576.01(A)(2) and (3) are met by the groundwater replenishment district of which the provider is a member.*

3. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 2 of this section, the provider will be accepted into the program only if the conditions established in A.R.S. § 45-576.01(B)(2) and (3) are met for the AMA by the multi-county water conservation district or AMA water district of which the provider is a member.*

4. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 3 of this section, the provider will be accepted into the program only if the director has determined that the provider will reduce the proportion of mined groundwater supplied within its service area to the proportions described in that subparagraph.*

5. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 4 of this section, the provider will be accepted into the program only if the director determines that the provider is designated as having an assured water supply under the rules adopted by the director under A.R.S. § 45-576.*

***E. Non-Per Capita Conservation Program Requirements***

*A large municipal provider regulated under the Non-Per Capita Conservation Program shall comply with the following requirements, as applicable, until the effective date of any substitute conservation requirements established in the Fourth Management Plan:*

1. *The provider shall implement the RCMs agreed to in writing under subsection D, paragraph 1 of this section beginning on a date agreed upon by the director and the provider.*

2. *If the provider applied for the Non-Per Capita Conservation Program under subsection A, paragraph 3 of this section, the provider shall reduce the proportion of mined groundwater supplied within its service area to the proportions described in that paragraph. A provider's failure to comply with this requirement during any year will be excused if the provider demonstrates to the director's satisfaction that the failure was due to drought conditions or the failure of a surface water distribution system.*

3. *If the provider applied for the Non-Per Capita Conservation Program under subsection A, paragraph 4 of this section, the provider shall not supply groundwater for use within its service area in an amount that exceeds the amount of groundwater that the provider may supply for use within its service area consistent with the rules adopted by the director*

*pursuant to A.R.S. § 45-576. If the provider's designation of assured water supply is revoked or otherwise terminates after the provider is accepted into the program, the amount of groundwater the provider may supply for use within its service area consistent with the rules shall be determined by the director as the amount of groundwater the provider would have been allowed to supply under the rules if the provider's designation of assured water supply had not been revoked or terminated.*

## *5-105. Alternative Conservation Program*

### *A. Eligibility for the Alternative Conservation Program*

*A large municipal provider is eligible to apply for the Alternative Conservation Program if one of the following applies:*

1. *The provider is designated as having an assured water supply under rules adopted by the director pursuant to A.R.S. § 45-576.*

2. *The provider agrees to limit its annual use of groundwater withdrawn from within the AMA as provided in subsection C, paragraph 1, subparagraph a, item 2 of this section.*

### *B. Application for Alternative Conservation Program*

*A large municipal provider's application for the Alternative Conservation Program must be approved by the provider's governing body, and must include the following:*

1. *A plan to limit the provider's overall groundwater withdrawals as required by subsection C, paragraph 1 of this section.*

2. *A description and evaluation, including implementation dates, of the provider's existing conservation programs.*

3. *A description of the proposed conservation strategies for all existing and new non-residential customers to be implemented by the provider under this program and the provider's schedule for implementation of all proposed conservation measures.*

4. *If the provider intends to comply with subsection C, paragraph 3 of this section by implementing one or more substitute non-residential RCMs in lieu of a standard non-residential RCM, an analysis of water use within the provider's service area which includes all of the following:*

    a. *A demonstration that the substituted RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*

    b. *The amount of water used each month during the past three years by each of the following water use sectors, as applicable: (1) residential (disaggregated by single family and multifamily), (2) commercial, (3) industrial, (4) turf-related facilities, (5) government, (6) construction, (7) distribution system losses, and (8) any other uses. The provider is not required to include this information if it has already been reported to the Department.*

c. *An identification and evaluation of the water use sectors described in subparagraph b of this paragraph that have the highest water conservation potential.*

## *C. Alternative Conservation Program Requirements*

*1. Groundwater Use Limitation Requirement*

a. *Beginning with a calendar year agreed upon by the director and a large municipal provider regulated under the Alternative Conservation Program, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, the provider shall limit its annual use of groundwater withdrawn from within the AMA to the following, as applicable:*

*1) If the provider is designated as having an assured water supply under the rules adopted by the director pursuant to A.R.S. § 45-576, the amount of groundwater which the provider may use consistent with the rules, including any amount of groundwater that will be replenished by a conservation district pursuant to Title 48, Chapter 22, Arizona Revised Statutes.*

*2) If the provider is not designated as having an assured water supply under the rules adopted by the director pursuant to A.R.S. § 45-576, one of the following, as applicable:*

*a) If the provider was serving water as a large municipal provider on or before January 1, 1990, the provider's largest legal groundwater use during any one calendar year from calendar year 1980 through calendar year 1989.*

*b) If the provider began serving water as a large municipal provider after January 1, 1990 but before January 1, 2000, fifty percent of the provider's largest legal groundwater use during any one calendar year from January 1, 1990 through calendar year 1999.*

b. *The large municipal provider may achieve compliance with the groundwater use limitation requirement described in subparagraph a, item 2 of this paragraph by permanently extinguishing or causing to be permanently extinguished grandfathered rights to groundwater as described in subparagraph c of this paragraph, by serving groundwater that will be replenished by a conservation district pursuant to Title 48, Chapter 22, Arizona Revised Statutes, by using remediated groundwater that is consistent with the accounting for surface water as provided in section 5-114, or by substituting non-groundwater supplies or groundwater withdrawn from outside the active management area for groundwater withdrawn from within the active management area, or by a combination of these methods.*

c. *Extinguishment of Groundwater Uses Associated with Grandfathered Rights*

*1) Applicability*

*Only irrigation grandfathered rights, Type 1 non-irrigation grandfathered rights and Type 2 non-irrigation grandfathered rights, as described in A.R.S. §§ 45-462 through 45-465, may be extinguished to meet the groundwater use limitation requirement. The large municipal provider shall not receive credit toward the achievement of the groundwater use limitation requirement for the*

*extinguishment of either a Type 2 non-irrigation grandfathered right used for electrical energy generation or mineral extraction or processing purposes, or a Type 1 or Type 2 non-irrigation grandfathered right owned or previously owned by a municipal provider and used or previously used to serve the municipal provider's service area.*

*2) Annual Credits*

*The director shall determine the amount of annual credit a large municipal provider obtains for extinguishment of grandfathered rights to groundwater as follows:*

*a) For each irrigation grandfathered right extinguished or caused to be extinguished by the provider, the annual credit shall be the amount calculated by multiplying 1.5 acre-feet per acre by the number of water duty acres associated with the extinguishment, less any debits, in acre-feet, in the farm's operating flexibility account at the time the right is extinguished.*

*b) For each Type 1 non-irrigation grandfathered right or portion of such right extinguished or caused to be extinguished by the provider, the annual credit shall be the amount calculated by multiplying 1.5 acre-feet per acre by the number of acres to which the Type 1 non-irrigation grandfathered right is appurtenant, or a proportional amount thereof if only a portion of the right is extinguished.*

*c) For each Type 2 non-irrigation grandfathered right extinguished or caused to be extinguished by the provider, the annual credit shall be the full amount, in acre-feet, of the certificated Type 2 non-irrigation grandfathered right.*

*3) Proof of Extinguishment*

*In order for a large municipal provider to obtain an annual credit for extinguishing or causing to be extinguished a grandfathered right to groundwater, the holder of the grandfathered right must deliver the Certificate of Grandfathered Right to the director before the calendar year in which the credit will be used, request that the grandfathered right be extinguished, and direct that the provider receive the annual credit. Only one provider may receive annual credit for any one portion of a grandfathered right which has been extinguished.*

*d. Compliance*

*The director shall determine whether a large municipal provider is in compliance with its groundwater use limitation requirement, as described in subparagraph a, item 2) of this paragraph in a calendar year as follows:*

*1) Add together the amount of annual credits received by the provider for extinguishing grandfathered rights to groundwater after January 1, 1990 pursuant to subparagraph c of this paragraph and pursuant to the Alternative Conservation Program in the second management plan.*

*2) Calculate the total volume of groundwater, in acre-feet, which the provider withdrew, diverted or received during the calendar year for use within the*

*provider's service area. In making this calculation, the director shall not include any groundwater that a conservation district replenished or is obligated to replenish under Title 48, Chapter 22, Arizona Revised Statutes or any remediated groundwater qualifying under section 5-114.*

3) *Subtract the amount calculated in item 1) above from the volume calculated in item 2) above.*

4) *A provider is in compliance with its groundwater use limitation requirement if the amount calculated in item 3) of this subparagraph is equal to or less than the following, as applicable:*

a) *If the provider was serving water as a large municipal provider on or before January 1, 1990, the provider's largest legal groundwater use during any one calendar year from calendar year 1980 through calendar year 1989.*

b) *If the provider began serving water as a large municipal provider after January 1, 1990 but before January 1, 2000, 50 percent of the provider's largest legal groundwater use during any one calendar year from January 1, 1989 through calendar year 1999.*

*Annual credits which are not needed by the provider to comply with its groundwater use limitation requirement in one calendar year shall not carry forward to any following calendar year.*

2. *Residential GPCD Requirement*

a. *Beginning with a calendar year agreed upon by the director and a large municipal provider regulated under the Alternative Conservation Program, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, the provider shall not serve water from any source, except direct use effluent and effluent recovered within the area of impact, for residential use during a calendar year in a total amount that exceeds its residential GPCD requirement for the year, except as provided in the flexibility account provisions in section 5-106. Each year, the annual residential GPCD requirement for a provider regulated under the Alternative Conservation Program shall be calculated as follows:*

1) *For calendar years 2002 through 2004, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, subsection D, by the first intermediate GPCD component for existing residential population as assigned to the provider in Table 5-103.A.*

*For calendar years 2005 through 2009, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, subsection D, by the second intermediate GPCD component for existing residential population as assigned to the provider in Table 5-103.A.*

*For the calendar year 2010, and for each calendar year thereafter until the first compliance date for any substitute GPCD requirement in the Fourth Management Plan, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, subsection D, by the final GPCD*

*component for existing residential population as assigned to the provider in Table 5-103.A.*

2) *Multiply the provider's new single family population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*

3) *Multiply the number of new single family housing units within the provider's service area as of July 1 of the calendar year in question by 75 GPHUD.*

4) *Multiply the provider's new multifamily population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*

5) *Multiply the number of new multifamily housing units within the provider's service area as of July 1 of the calendar year in question by 58 GPHUD.*

6) *Add the products from items 1) through 5) of this subparagraph, and then divide the sum by the provider's service area population as of July 1 of the calendar year. The quotient is the provider's residential GPCD requirement for the calendar year.*

b. *Compliance with Residential GPCD Requirement*

*The director shall determine if a large municipal provider regulated under the Alternative Conservation Program is in compliance with its residential GPCD requirement pursuant to the flexibility account provisions in section 5-106.*

3. *Non-Residential Requirement*

a. *A large municipal provider regulated under the Alternative Conservation Program shall agree in writing to implement the following non-residential RCMs beginning on a date agreed upon by the director and the provider:*

1) *Non-Residential Interior Requirements - The provider shall agree in writing to implement the non-residential interior standard RCMs described in Appendix 5D.2. In lieu of implementing one or more of the standard RCMs, the provider may agree to implement one or more of the non-residential interior substitute RCMs or system-related RCMs listed in the substitute RCM list described in Appendix 5D.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*

2) *Non-Residential Exterior Requirements - The provider shall agree in writing to implement the non-residential exterior standard RCMs described in Appendix 5D.2. In lieu of implementing one or both of the standard RCMs, the provider may agree to implement one or more of the non-residential exterior substitute RCMs or system-related RCMs listed in the substitute RCM list described in Appendix 5D.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*

## *5-106. Compliance with Total Gallons Per Capita Per Day Requirement and Residential Gallons Per Capita Per Day Requirement - Flexibility Account*

### *A. Total GPCD Program Flexibility Account*

*The director shall determine if a large municipal provider regulated under the Total Gallons Per Capita Per Day Program is in compliance with its annual total GPCD requirement through the maintenance of a flexibility account for the provider which shall operate as follows:*

1. *Each provider regulated under the Total Gallons Per Capita Per Day Program shall be assigned a flexibility account. The beginning balance in the flexibility account of a provider that was regulated under the Total Gallons Per Capita Per Day Program in the Second Management Plan shall be the ending balance in the flexibility account maintained for the provider under section 5-105 of the Second Management Plan. The beginning balance in the flexibility account of all other large municipal providers shall be zero.*

2. *Following each calendar year in which the provider withdraws, diverts or receives groundwater for non-irrigation use, beginning with the calendar year determined under section 5-103, subsection A, paragraph 2 or the calendar year in which the provider first becomes a large municipal provider, whichever is later, the director shall adjust the provider's flexibility account as follows:*

    a. *Determine the total gallons of water from any source, except direct use effluent and effluent recovered within the area of impact, withdrawn, diverted or received by the provider during the calendar year for non-irrigation use, and then subtract that amount from the amount of water the provider could legally withdraw, divert or receive during the calendar year for non-irrigation use, as calculated in subparagraph d of this paragraph.*

    b. *If the result in subparagraph a above is negative, debit the flexibility account by this volume.*

    c. *If the result in subparagraph a above is positive, credit the flexibility account by this volume.*

    d. *The amount of water which a provider regulated under the Total Gallons Per Capita Per Day Program can legally withdraw, divert or receive for non-irrigation use during a calendar year is calculated by multiplying the provider's total GPCD requirement for the calendar year, as calculated pursuant to section 5-103, subsection B, by the provider's service area population as of July 1 of the year, as calculated pursuant to section 5-103 subsection D, and then multiplying the product by the number of days in the calendar year.*

3. *The account balance existing in a provider's flexibility account after the adjustment provided for in paragraph 2 of this subsection is made shall carry forward subject to the following limitations:*

    a. *The maximum positive account balance allowed in the flexibility account of a provider regulated under the Total Gallons Per Capita Per Day Program shall be calculated by multiplying the provider's service area population as of July 1 of the*

*calendar year by a GPCD rate of 30, and then multiplying that product by the number of days in the calendar year. If the account balance exceeds the maximum positive account balance after any credits are registered, the balance carried forward shall equal the maximum positive account balance allowed in the provider's flexibility account for that year.*

*b. The maximum negative account balance allowed in the flexibility account of a provider regulated under the Total Gallons Per Capita Per Day Program shall be calculated by multiplying the provider's service area population as of July 1 of the calendar by a GPCD rate of -10, and then multiplying that product by the number of days in the calendar year. If the account balance exceeds the maximum negative account balance after any debits are registered, the balance carried forward shall equal the maximum negative account balance allowed in the provider's flexibility account for that year.*

***B. Alternative Conservation Program Flexibility Account***

*The director shall determine if a large municipal provider regulated under the Alternative Conservation Program is in compliance with its annual residential GPCD requirement through the maintenance of a flexibility account for the provider which shall operate as follows:*

*1. Each provider regulated under the Alternative Conservation Program shall be assigned a flexibility account with a beginning balance to be calculated by the director based on the ending balance in the provider's flexibility account while the provider was regulated under the Total Gallons Per Capita Per Day Program or under the Alternative Conservation Program of the Second Management Plan, whichever applies.*

*2. Following each calendar year in which the provider delivers groundwater for residential use, beginning with the calendar year agreed upon by the director and the provider, the director shall adjust the provider's flexibility account balance as follows:*

*a. Determine the total gallons of water from any source, except direct use effluent and effluent recovered within the area of impact, served by the provider during the calendar year for residential use, and then subtract that amount from the amount of water the provider could legally serve during the calendar year for residential use, as calculated in subparagraph d of this paragraph.*

*b. If the result in paragraph a above is negative, debit the flexibility account by this volume.*

*c. If the result in paragraph a above is positive, credit the flexibility account by this volume.*

*d. The amount of water which a provider regulated under the Alternative Conservation Program can legally serve for residential use during a calendar year is calculated by multiplying the provider's residential GPCD requirement for the calendar year, as calculated pursuant to section 5-105, subsection C, paragraph 2, by the provider's service area population as of July 1 of the year as calculated pursuant to section 5-103, subsection D, and then multiplying the product by the number of days in the calendar year.*

3. *The account balance existing in a provider's flexibility account after the adjustment provided for in paragraph 2 of this subsection is made shall carry forward subject to the following limitations:*

   a. *The maximum positive account balance allowed in the flexibility account of a provider regulated under the Alternative Conservation Program shall be calculated by multiplying the provider's service area population as of July 1 of the calendar by a GPCD rate of 21, and then multiplying that product by the number of days in the calendar year. If the account balance exceeds the maximum positive account balance after any credits are registered, the balance carried forward shall equal the maximum positive account balance allowed in the provider's flexibility account for that year.*

   b. *The maximum negative account balance allowed in the flexibility account of a provider regulated under the Alternative Conservation Program shall be calculated by multiplying the provider's service area population as of July 1 of the calendar year by a GPCD rate of -7, and then multiplying that product by the number of days in the calendar year. If the account balance exceeds the maximum negative account balance after any debits are registered, the balance carried forward shall equal the maximum negative account balance allowed in the provider's flexibility account for that year.*

***C. Compliance Status***

*If the adjustment to a large municipal provider's flexibility account following a calendar year as provided for in subsection A or B of this section causes the account to have a negative account balance which exceeds the maximum negative account balance allowed in the provider's flexibility account for the year as calculated in subsection A, paragraph 3 or subsection B, paragraph 3, the provider is out of compliance for that calendar year.*

***5-107. Conservation Requirements for Institutional Providers***

***A.*** *If a large municipal provider operates primarily for the purpose of serving water to institutions, including prisons, hospitals, military installations, airparks and schools, and supplies or expects to supply more than 90 percent of its total non-irrigation deliveries to one or more of these institutions, the provider may apply to the director for designation as an institutional provider. The director may deem a facility other than one of those listed above as an institution if its water use characteristics are similar to the types of institutions listed above.*

***B.*** *A large municipal provider regulated as an institutional provider in the Second Management Plan may reapply to the director to be designated as an institutional provider under the Third Management Plan any time after it has been noticed of its total GPCD requirements for the Third Management Plan.*

***C.*** *A large municipal provider applying for designation as an institutional provider shall apply on a form prescribed and furnished by the director. The provider shall supply information in sufficient detail to allow the director to evaluate the provider's conservation potential and to establish appropriate conservation requirements for the provider.*

***D.*** *The director shall approve a large municipal provider's application for designation as an institutional provider if the provider meets the criteria in subsection A of this section, and*

*demonstrates that it does not qualify for the Non-Per Capita Conservation Program or the Alternative Conservation Program.*

***E.*** *Each large municipal provider designated as an institutional provider shall be assigned mandatory conservation requirements and monitoring and reporting requirements, including a maximum residential GPCD requirement and appropriate conservation measures for non-residential uses. The institutional provider shall comply with the assigned conservation requirements by the date specified by the director, but not later than January 1 of the year following the year in which the provider's application is approved, and shall remain in compliance with those requirements until the first compliance date for any substitute requirements in the Fourth Management Plan.*

## *5-108. Consolidation of Municipal Provider Service Areas; Acquisition of a Portion of Another Municipal Provider's Service Area*

### *A. Notification*

1. *If two or more municipal providers consolidate their service areas into one service area, the consolidated provider shall notify the Department of the consolidation within 30 days after the consolidation becomes effective.*

2. *If a municipal provider acquires a portion of another municipal provider's existing service area, both the acquiring provider and the conveying provider shall notify the Department of the acquisition within 30 days after the acquisition becomes effective.*

### *B. Regulation of Consolidated Provider*

1. *Upon consolidation, a consolidated provider that qualifies as a large municipal provider shall be regulated under the Total GPCD Program described in section 5-103, unless the consolidated provider applies for and is accepted for regulation under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105.*

2. *If the consolidated provider is regulated under the Total GPCD Program, the director shall establish a total GPCD requirement for the consolidated provider consistent with the methodology used by the director to establish the consolidating providers' total GPCD requirements as set forth in Appendix 5B.1. The director shall also establish and maintain a flexibility account for the consolidated provider in accordance with section 5-106, subsection A, with a beginning balance to be established by the director based on the ending balances in the flexibility accounts of the consolidating providers.*

3. *If the consolidated provider is accepted for regulation under the Alternative Conservation Program, the director shall establish a residential GPCD requirement for the consolidated provider consistent with the methodology used by the director to establish the consolidating providers' residential GPCD requirements as set forth in Appendix 5B.1. The director shall also establish and maintain a flexibility account for the consolidated provider in accordance with section 5-106, subsection B, with a beginning balance to be established by the director based on the ending balances in the flexibility accounts of the consolidating providers.*

4. *If the consolidated provider applies for regulation under the Non-Per Capita Conservation Program or the Alternative Conservation Program and one of the*

*consolidating providers was regulated under that program immediately prior to consolidation, the consolidated provider's application for regulation under the program shall include only the information required by section 5-104 or section 5-105 that has changed since the consolidating provider filed its application for the program.*

### *C. Regulation of Acquiring Provider*

1. *Except as provided in paragraph 2 of this subsection, a large municipal provider that acquires a portion of another provider's existing service area shall continue to be regulated under the conservation program that the acquiring provider was regulated under immediately prior to the acquisition.*

2. *If the acquiring provider was regulated under either the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105 immediately prior to the acquisition, the acquiring provider shall be regulated under the Total GPCD Program beginning on January 1 of the first calendar year after the acquisition unless the acquiring provider reapplies to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program, whichever is applicable, within 180 days after the acquisition. If the acquiring provider reapplies to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program within 180 days after the acquisition, both of the following shall apply:*

    a. *The provider shall continue to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program, whichever is applicable, until the director makes a final decision on the acquiring provider's application.*

    b. *The acquiring provider's application shall include only the information required by section 5-104 or section 5-105 that has changed since the acquiring provider filed its original application for the program.*

3. *If the acquiring provider is regulated under the Total GPCD Program after the acquisition, the director shall establish a new total GPCD requirement for the acquiring provider consistent with the methodology used to establish the provider's total GPCD requirements in Appendix 5B.1, taking into account the addition to the provider's service area. The director may also adjust the balance in the acquiring provider's flexibility account maintained under section 5-106, subsection A, to take into account the balance in the conveying provider's flexibility account at the time of the conveyance.*

4. *If the acquiring provider is regulated under the Alternative Conservation Program after the acquisition, the director shall establish a new residential GPCD requirement for the provider consistent with the methodology used to establish the residential GPCD requirements in Appendix 5B.1, taking into account the addition to the provider's service area. The director may also adjust the balance in the acquiring provider's flexibility account maintained under section 5-106, subsection A, to take into account the balance in the conveying provider's flexibility account at the time of the conveyance.*

### *D. Regulation of Conveying Provider*

1. *Except as provided in paragraph 2 of this subsection, a large municipal provider that conveys a portion of its service area to another provider and that qualifies as a large municipal provider after the conveyance shall continue to be regulated under the*

*conservation program that the provider was regulated under immediately prior to the conveyance.*

2. *If the conveying provider was regulated under either the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105 immediately prior to the acquisition, and if the conveying provider qualifies as a large municipal provider after the conveyance, shall be regulated under the Total GPCD Program beginning on January 1 of the first calendar year after the acquisition unless the provider reapplies to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program, whichever is applicable, within 180 days after the conveyance. If the conveying provider reapplies to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program within 180 days after the conveyance, both of the following shall apply:*

    a. *The provider shall continue to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program, whichever is applicable, until the director makes a final decision on the provider's application.*

    b. *The provider's application shall include only the information required by section 5-104 or section 5-105 that has changed since the provider filed its original application for the program.*

3. *If the conveying provider is regulated under the Total GPCD Program after the conveyance, the director shall establish a new total GPCD requirement for the provider consistent with the methodology used to establish the total GPCD requirements in Appendix 5B.1, taking into account the reduction in the provider's service area. The director may also adjust the balance in the conveying provider's flexibility account maintained under section 5-106 to take into account the reduction in the provider's service area.*

4. *If the conveying provider is regulated under the Alternative Conservation Program after the conveyance, the director shall establish a new residential GPCD requirement for the provider consistent with the methodology used to establish the residential GPCD requirements in Appendix 5B.1, taking into account the reduction in the provider's service area. The director may also adjust the balance in the conveying provider's flexibility account maintained under section 5-106 to take into account the reduction in the provider's service area.*

## *5-109. Conservation Requirements for New Large Municipal Providers*

### *A. Total GPCD Program*

1. *A new large municipal provider shall be assigned to the Total GPCD Program described in section 5-103 and shall comply with its annual total GPCD requirement no later than the second full calendar year after the provider is given written notice of the requirement by the director, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan.*

2. *A new large municipal provider's total GPCD requirement for a year shall be calculated as follows:*

a. *For calendar years 2002 through 2004, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, by the provider's first intermediate GPCD component for existing residential population as determined by the director after the provider qualifies as a new large provider. In determining the provider's first intermediate GPCD component for existing residential population, the director shall calculate the existing residential component consistent with the methodology used to calculate the existing residential component for existing large municipal providers, taking into consideration already existing conservation measures.*

   *For calendar years 2005 through 2009, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, by the provider's second intermediate GPCD component for existing residential population as determined by the director after the provider qualifies as a new large provider. In determining the provider's second intermediate GPCD component for existing residential population, the director shall calculate the existing residential component consistent with the methodology used to calculate the existing residential component for existing large municipal providers, taking into consideration already existing conservation measures.*

   *For the calendar year 2010, and for each calendar year thereafter until the first compliance date for any substitute total GPCD requirement in the Fourth Management Plan, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, by the provider's final GPCD component for existing residential population as determined by the director after the provider qualifies as a new large provider. In determining the provider's final GPCD component for existing residential population, the director shall calculate the existing residential component consistent with the methodology used to calculate the existing residential component for existing large municipal providers, taking into consideration already existing conservation measures.*

b. *Multiply the provider's new single family population for the year, as calculated pursuant section 5-103, subsection D, by 57 GPCD.*

c. *Multiply the number of new single family housing units within the provider's service area as of July 1 of the calendar year in question by 75 GPHUD.*

d. *Multiply the provider's new multifamily population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*

e. *Multiply the number of new multifamily housing units within the provider's service area as of July 1 of the calendar year in question by 58 GPHUD.*

f. *Determine the provider's non-residential GPCD by dividing the total non-residential water delivered, in gallons, during the calendar year by the service area population for the calendar year, as calculated pursuant to section 5-103, subsection D, and dividing by the number of days in the calendar year. The non-residential GPCD component equals the non-residential GPCD rate for the calendar year up to 18 GPCD. If the non-residential GPCD rate for the calendar year is greater than 18 GPCD, the non-residential component shall be 18 GPCD.*

g. *Divide the provider's allowable lost and unaccounted for water by the number of days in the calendar year. The provider's allowable lost and unaccounted for water is the lesser of the following:*

1) *the provider's actual lost and unaccounted for water for the year, in gallons.*

2) *an amount calculated by multiplying the total gallons of water from any source, except direct use effluent, withdrawn, diverted or received by the provider during the year for non-irrigation uses by 10 percent.*

h. *Add the results from paragraphs a through g of this section, and then divide the sum by the provider's annual service area population as of July 1 of that year, as determined pursuant to section 5-103, subsection D. The quotient is the provider's total GPCD requirement for the calendar year.*

3. *The director shall determine if a new large municipal provider is in compliance with its annual total GPCD requirement pursuant to the flexibility account provisions in section 5-106.*

***B. Non-Per Capita Conservation Program***

*A new large municipal provider may apply for regulation under the Non-Per Capita Conservation Program in accordance with section 5-104.*

***C. Alternative Conservation Program***

1. *Application*

*A new large municipal provider may apply for regulation under the Alternative Conservation Program in accordance with section 5-105.*

2. *Substitute Groundwater Use Limitation Requirement*

*A new large municipal provider accepted into the Alternative Conservation Program is exempt from complying with the groundwater use limitation requirement as described in section 5-105, subsection C, paragraph 1, subparagraph a, but shall limit its annual groundwater use to the following amount as applicable:*

a. *If the provider is designated as having an assured water supply under the rules adopted by the director pursuant to A.R.S. § 45-576, the amount the provider is allowed to use under those rules.*

b. *If the provider is not designated as having an assured water supply under the rules adopted by the director pursuant to A.R.S. § 45-576, the amount that it would be allowed to use if it was designated as having an assured water supply under those rules, as determined by the director.*

3. *Annual Residential GPCD Requirement*

   a. *Requirement*

      *A new large municipal provider regulated under the Alternative Conservation Program shall comply with its annual residential GPCD requirement for each calendar year as described in section 5-105, subsection C, paragraph 2, subparagraph a.*

   b. *Calculation of Annual Residential GPCD Requirement*

      *Each year the annual residential GPCD requirement for a new large municipal provider regulated under the Alternative Conservation Program shall be calculated as follows:*

      1) *Multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, subsection D, by the GPCD component for existing residential population as determined by the director. The GPCD components shall assume the implementation of conservation measures appropriate for the characteristics of the provider's service area, taking into consideration already existing conservation measures.*

      2) *Multiply the provider's new single family population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*

      3) *Multiply the number of new single family housing units within the provider's service area as of July 1 of the calendar year in question by 75 GPHUD.*

      4) *Multiply the provider's new multifamily population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*

      5) *Multiply the number of new multifamily housing units within the provider's service area as of July 1 of the calendar year in question by 58 GPHUD.*

      6) *Add the products from items 1) through 5) of this subparagraph, and then divide the sum by the provider's service area population as of July 1 of the calendar year. The quotient is the provider's residential GPCD requirement for the calendar year.*

   c. *Compliance with Annual Residential GPCD Requirement*

      *The director shall determine if a new large municipal provider regulated under the Alternative Conservation Program is in compliance with its annual residential GPCD requirement pursuant to the flexibility account provisions in section 5-106.*

4. *Non-Residential Conservation Programs*

   *A new large municipal provider regulated under the Alternative Conservation Program shall implement conservation programs for its non-residential customers in accordance with section 5-105, subsection C, paragraph 3.*

## *5-110. Conservation Requirements for Small Municipal Providers*

*A. By January 1, 2002, or upon commencement of service of water, whichever is later, and until the first compliance date for any substitute requirements in the Fourth Management Plan, a small municipal provider shall adopt and implement a program to achieve the following goals:*

*1. Minimize waste of all water supplies.*

*2. Maximize efficiency in outdoor watering.*

*3. Encourage reuse of water supplies.*

*4. Reduce its total GPCD usage.*

## *5-111. Individual User Requirements for Municipal Providers and Individual Users*

*A. Individual User Requirements*

*Beginning January 1, 2002, or upon commencement of service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, the municipal provider or individual user responsible for compliance with the individual user requirements under subsection B of this section shall comply with the following, as applicable:*

*1. The municipal provider or individual user shall serve water to, or use water within, a turf-related facility only in accordance with sections 6-302 through 6-305 of the Industrial Chapter of the Third Management Plan, and shall comply with the monitoring and reporting requirements set forth in section 6-203 of the Industrial Chapter, as though the individual user were an industrial user. The person responsible for compliance shall also comply with the requirements contained in section 6-202 of the Industrial Chapter, if applicable, as though the individual user were an industrial user.*

*2. The municipal provider or individual user shall serve water to, or use water within, a large-scale cooling facility only if the person using water at the facility complies with all applicable conservation requirements contained in sections 6-502 and 6-503 of the Industrial Chapter of the Third Management Plan as though the person was an industrial user. The person responsible for compliance shall also comply with the applicable monitoring and reporting requirements contained in section 6-203 and the conservation requirements contained in section 6-202 of the Industrial Chapter, if applicable, as though the individual user were an industrial user.*

*3. The municipal provider or individual user shall serve or use groundwater for the purpose of watering landscaping plants planted on or after January 1, 1987 within any publicly owned right-of-way of a highway, street, road, sidewalk, curb or shoulder which is used for travel in any ordinary mode, including pedestrian travel, only if the plants are listed in Appendix 5F. The director may waive this requirement upon request from the municipal provider or individual user if a waiver of this requirement is in the public interest. This requirement does not apply to any portion of a residential lot that extends into a publicly owned right-of-way.*

4. *The municipal provider or individual user shall not serve or use groundwater for the purpose of maintaining a water feature installed after January 1, 2002 within any publicly owned right-of-way of a highway, street, road, sidewalk, curb or shoulder which is used for travel in any ordinary mode, including pedestrian travel. The director may waive this requirement upon request from the municipal provider or individual user if a waiver of this requirement is in the public interest. This requirement does not apply to any portion of a residential lot that extends into a publicly owned right-of-way.*

***B.*** *Responsibility for Compliance with Individual User Requirements*

1. *A municipal provider shall be responsible for complying with an individual user requirement set forth in subsection A of this section for an existing individual user unless one of the following applies:*

   a. *The provider identified the existing individual user to the director on a form provided by the Department and received by the director no later than 90 days before the adoption of the Third Management Plan.*

   b. *The director gave written notice of the individual user requirement to the individual user within 30 days after the adoption of the Third Management Plan.*

2. *An existing individual user that has been given written notice of an individual user requirement by the director shall be responsible for complying with the individual user requirement beginning on the date specified in the notice.*

3. *A municipal provider shall be responsible for complying with an individual user requirement set forth in subsection A of this section for a new individual user unless one of the following applies:*

   a. *The municipal provider identifies the new individual user to the director on a form provided by the Department. If the provider identifies the new individual user to the director within 90 days after the provider begins serving water to the new individual user, the municipal provider shall not be responsible for complying with the individual user requirement at any time. If the provider identifies the new individual user to the director more than 90 days after the provider begins serving water to the new individual user, the provider shall be responsible for complying with the individual user requirement beginning on the date the new individual user first receives water from the provider until the end of the calendar year in which the provider identifies the individual user to the director.*

   b. *The director has given written notice of the individual user requirement to the individual user and the individual user is responsible for complying with the requirement.*

4. *A new individual user that has been given written notice of an individual user requirement by the director shall be responsible for complying with the individual user requirement beginning on the date specified in the notice.*

***C. Notification of New Individual User by Municipal Provider***

*Beginning January 1, 2002, and continuing thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, a municipal provider shall notify a*

*new individual user in writing of its individual user requirements as set forth in subsection A of this section before commencement of service of water to the individual user.*

### *5-112. Conservation Requirements for Municipal Distribution Systems*

*For the calendar year 2002, or the calendar year in which the provider commences service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan:*

1. *A large municipal provider shall not operate a municipal distribution system in a manner such that lost and unaccounted for water exceeds 10 percent of the total quantity of water from any source, except direct use effluent, withdrawn, diverted or received by the large municipal provider on an annual or three-year average basis.*

2. *A small municipal provider shall not operate its municipal distribution system in a manner such that lost and unaccounted for water exceeds 15 percent of the total quantity of water from any source, except direct use effluent, withdrawn, diverted or received by the small municipal provider on an annual or three-year average basis.*

### *5-113. Monitoring and Reporting Requirements for Municipal Providers and Individual Users*

*For the calendar year 2002, or for the calendar year in which the municipal provider commences service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan:*

1. *A large municipal provider shall separately measure and report in its annual reports required by A.R.S. §§ 45-468 and 45-632, the total quantity of water from any source, including effluent, delivered each month for: a) irrigation uses; b) residential uses by category, including single family and multifamily; and c) non-residential uses by category, including turf-related facility uses, commercial uses, industrial uses, government uses, construction uses and other uses.*

2. *A municipal provider shall report the following in its annual report required by A.R.S. § 45-632:*

    a. *The total quantity of water from any source, disaggregated by each source, withdrawn, diverted or received by the provider for non-irrigation use during the reporting year, as separately measured with a measuring device in accordance with paragraph 6 of this subsection.*

    b. *The total quantity of water from any source, including effluent, withdrawn, diverted or received by the provider for irrigation use during the reporting year.*

    c. *The total quantity of effluent, disaggregated by direct use effluent, effluent recovered from within the area of impact, and effluent recovered outside the area of impact, served by the provider during the reporting year for non-irrigation use.*

    d. *The number of single family housing units added to the provider's service area from July 1 of the previous calendar year to July 1 of the reporting year.*

    e. *The number of multifamily housing units added to the provider's service area from July 1 of the previous calendar year to July 1 of the reporting year.*

*f. The total number of single family housing units and multifamily housing units served by the provider as of July 1, 2000.*

*g. The number of single family housing units and the number of multifamily housing units added to the provider's service area between July 1, 2000 and July 1 of the reporting year.*

*h. The provider's total quantity of lost and unaccounted for water during the calendar year.*

*i. The percentage of the total quantity of water from any source, except direct use effluent, withdrawn, diverted or received by the provider during the calendar year that is lost and unaccounted for water.*

*3. In addition to the information required by paragraphs 1 and 2 of this section, a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 shall include the following in its annual report required by A.R.S. § 45-632:*

*a. The information listed in the monitoring and reporting requirement sections of those RCMs set forth in Appendix 5D that the provider agrees in writing to implement pursuant to section 5-104, subsection E, paragraph 1.*

*b. If the provider applied for the Non-Per Capita Conservation Program under section 5-104, subsection A, paragraph 4, the information required to be submitted by the provider under the Assured Water Supply Rules adopted by the director pursuant to A.R.S. § 45-576.*

*c. Any other information required by the director in order to determine the provider's compliance with the Non-Per Capita Conservation Program.*

*4. In addition to the information required by paragraphs 1 and 2 of this section, a large municipal provider regulated under the Alternative Conservation Program described in section 5-105 shall include in its annual report required by A.R.S. § 45-632:*

*a. A status report describing progress in implementing the provider's programs proposed in its application, specifically including the provider's proposed conservation plan.*

*b. The information listed in the monitoring and reporting requirement sections of those RCMs set forth in Appendix 5D that the provider agrees in writing to implement pursuant to section 5-105, subsection C, paragraph 3.*

*5. A large municipal provider shall meter water deliveries to all service connections on its municipal distribution system, except connections to fire services, dwelling units in individual multifamily units, mobile homes in a mobile home park with a master meter, and construction users.*

*6. A municipal provider shall make all water use measurements using measuring devices in accordance with the Department's measuring device rules, R12-15-901, et seq., Arizona Administrative Code.*

7. *An individual user shall meet the monitoring and reporting requirements prescribed in the Industrial Chapter, if applicable, as though the individual user were an industrial user.*

## *5-114. Remediated Groundwater Accounting for Conservation Requirements*

### *A. Accounting*

*Groundwater withdrawn pursuant to an approved remedial action project under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or Title 49, Arizona Revised Statutes, and used by a person subject to a conservation requirement established under this chapter, shall be accounted for consistent with the accounting for surface water for purposes of determining the person's compliance with the conservation requirement, subject to the provisions of subsections B through D of this section.*

### *B. Amount of Groundwater Eligible for Accounting*

*For each approved remedial action project, the annual amount of groundwater that is eligible for the remediated groundwater accounting provided in subsection A of this section is the project's annual authorized volume. The annual authorized volume for a remedial action project approved on or after June 15, 1999 is the maximum annual volume of groundwater that may be withdrawn pursuant to the project, as specified in a consent decree or other document approved by the United States Environmental Protection Agency (EPA) or the Arizona Department of Environmental Quality (ADEQ). The annual authorized volume for a project approved prior to June 15,1999 is the highest annual use of groundwater withdrawn pursuant to the project prior to January 1, 1999, except that if a consent decree or other document approved by the EPA or ADEQ specifies the maximum annual volume of groundwater that may be withdrawn pursuant to the project, the project's annual authorized volume is the maximum annual volume of groundwater specified in that document. The director may modify the annual authorized volume for a remedial action project as follows:*

1. *For an approved remedial action project associated with a treatment plant that was in operation prior to June 15, 1999, a person may request an increase in the annual authorized volume at the same time the notice is submitted pursuant to subsection C of this section. The director shall increase the annual authorized volume up to the maximum treatment capacity of the treatment plant if adequate documentation is submitted to the director demonstrating that an increase is necessary to further the purpose of the remedial action project and the increase is not in violation of the consent decree or other document approved by the EPA or ADEQ.*

2. *A person may request an increase in the annual authorized volume of an approved remedial action project at any time if it is necessary to withdraw groundwater in excess of the annual authorized volume to further the purpose of the project. The director shall increase the annual authorized volume up to the maximum volume needed to further the purpose of the project if adequate documentation justifying the increase is submitted to the director and the increase is not in violation of the consent decree or other document approved by the EPA or ADEQ.*

3. *The director shall modify the annual authorized volume of an approved remedial action project to conform to any change in the consent decree or other document approved by the EPA or ADEQ if the person desiring the modification gives the director written notice of the change within thirty days after the change. The notice shall include a copy of the*

*legally binding agreement changing the consent decree or other document approved by the EPA or ADEQ.*

### *C. Notification*

*To qualify for the remediated groundwater accounting provided in subsection A of this section, the person desiring the accounting must notify the director in writing of the anticipated withdrawal of groundwater pursuant to an approved remedial action project under CERCLA or Title 49, Arizona Revised Statutes, prior to the withdrawal. A municipal provider may submit notice on behalf of an individual user. At the time the notice is given, the person desiring the accounting must be using remediated groundwater pursuant to the approved remedial action project or must have agreed to do so through a consent decree or other document approved by the EPA or ADEQ. The notice required by this subsection shall include all of the following:*

1. *A copy of a document approved by ADEQ or the EPA, such as the Remedial Action Plan (RAP), Record of Decision (ROD) or consent decree, authorizing the remediated groundwater project. Unless expressly specified in the document, the person shall include in the notice the volume of groundwater that will be pumped annually pursuant to the project, the time period to which the document applies, and the annual authorized volume of groundwater that may be withdrawn pursuant to the project.*

2. *The purpose for which the remediated groundwater will be used.*

3. *The name and telephone number of a contact person.*

4. *Any other information required by the director.*

### *D. Monitoring and Reporting Requirements*

*To qualify for the remediated groundwater accounting for conservation requirements as provided in subsection A of this section, groundwater withdrawn pursuant to the approved remedial action project must be metered separately from groundwater withdrawn in association with another groundwater withdrawal authority for the same or other end use. A person desiring the remediated groundwater accounting for conservation requirements shall indicate in its annual report under A.R.S. § 45-632 the volume of water withdrawn and used during the previous calendar year that qualifies for the accounting.*

**APPENDIX 5A**
**SMALL MUNICIPAL PROVIDERS**
**PRESCOTT ACTIVE MANAGEMENT AREA**

| PROVIDER | STATUS |
|---|---|
| Arizona Laborer's Joint Training Facility | Miscellaneous |
| Bradshaw Water Company, Inc. | Private Water Company |
| Chino Meadows II Water Company | Private Water Company |
| Dell's Water Company | Private Water Company |
| Granite Dells Water Company | Private Water Company |
| Granite Oaks Water Users Association | Private Water Company |
| Hatcher, Jim | Private Water Company |
| Highland Pine Domestic Water | Private Water Company |
| Holiday Hills Water Company | Private Water Company |
| Humboldt Water Company | Private Water Company |
| KO Trailer Park | Mobile Home Park |
| Lazy T Trailer Park | Mobile Home Park |
| Roadrunner Mobile Home Park | Mobile Home Park |
| Sherman Pines Water Company | Private Water Company |
| Triangle Development Corporation | Private Water Company |
| Wilhoit Water Company | Private Water Company |
| Wilhoit Water Company | Private Water Company |

## APPENDIX 5B.1
## COMPONENT GALLONS PER CAPITA PER DAY (GPCD) CALCULATION DESCRIPTION
## TOTAL GPCD PROGRAM
## PRESCOTT ACTIVE MANAGEMENT AREA

A. Residential:

1. Existing Single Family and Multifamily Allotment

   a. Determine Base Year 2000 Population, including single family and multifamily housing units.
   b. Multiply Base Year 2000 Residential Population by the Existing Residential SF/MF GPCD Target (Table 5-103.A of the municipal conservation requirements).
   c. Multiply the result of 1.b. above by the number of days in the year.
   d. Result is a volumetric allotment, in acre-feet, for existing residential users with expected GPCD reductions included in the annual target calculation.

2. New Single Family and Multifamily Allotment:

   a. Determine:
   New Single Family Housing Units added since June 30, 2000
   New Single Family Population (post - 2000) for the calendar year
   New Multifamily Housing Units added since June 30, 2000
   New Multifamily Population (post - 2000) for the calendar year

   b. Multiply New Single Family Housing Units and New Multifamily Housing Units by Exterior model GPCD Rates for New Development and the number of days in the year:
   Single Family = 75 GPHUD
   Multifamily = 58 GPHUD

   c. Multiply the sum of the New Single Family Population and the New Multifamily Population by the Interior model GPCD rate of 57 for new residential development and the number of days in the year.

3. Add together the Existing Single Family and Multifamily Allotment to the New Single Family and Multifamily Allotment to calculate the RESIDENTIAL ALLOTMENT.

B. Non-Residential:

1. Multiply the Total Population for the calendar year by the Non-Residential GPCD Requirement from Table 5-103.A of the municipal conservation requirements.
2. The result is the volumetric allotment, in acre-feet, for non-residential uses each calendar year.

C. Lost and Unaccounted For Water:

1. Subtract the calendar year total residential, non-residential, and system-related deliveries from the calendar year Total Water Use to obtain the Lost Water volume.
2. Divide the Lost Water Volume by the Total Water Use for the calendar year.

3a. If the product is **less than** 10 percent, the Lost Water volume is the volumetric allotment, in acre-feet, for lost and unaccounted for the calendar year.

3b. If the product is **greater than** 10 percent, multiply the Total Water Use for the calendar year by 10 percent. The result is the volumetric allotment, in acre-feet, for lost and unaccounted for the calendar year.

D. Add A, B, and C to determine the total volumetric allotment, divide by the Total Population for the calendar year and the number of days in the year to obtain the Total Gallons Per Capita Per Day requirement.

## APPENDIX 5B.2
## COMPONENT GPCD CALCULATION - EXAMPLE CALCULATION
## PRESCOTT ACTIVE MANAGEMENT AREA

**Example:** The existing population is comprised of the residents served in calendar year 2000. The new population is comprised of those residents added in 2001 and after (i.e. for calendar year 2002, the new population would be the 2001 population plus those added in 2002).

| | | | |
|---|---|---|---|
| 1) | EXISTING HOUSING UNITS/POPULATION | | |
| | a. Existing (2000) SF Housing Units | = | 15,000 |
| | b. Existing (2000) MF Housing Units | = | 5,000 |
| | **c. TOTAL EXISTING RESIDENTIAL HOUSING UNITS** | **=** | **20,000** |
| | d. Existing (2000) SF Population | = | 30,150 |
| | e. Existing (2000) MF Population | = | 7,500 |
| | **f. TOTAL EXISTING RESIDENTIAL POPULATION** | **=** | **37,650** |
| 2) | NEW HOUSING UNITS/POPULATION | | |
| | a. New SF Housing Units Added since June 30, 2000 | = | 340 |
| | b. New MF Housing Units Added since June 30, 2000 | = | 110 |
| | **c. TOTAL NEW RESIDENTIAL HOUSING UNITS** | **=** | **450** |
| | d. New SF Population Added since June 30, 2000 | = | 683 |
| | e. New MF Population Added since June 30, 2000 | = | 165 |
| | **f. TOTAL NEW RESIDENTIAL POPULATION** | **=** | **848** |
| 3) | COMPONENT RATES: | | |
| | a. Existing Residential GPCD Component | = | 92 (1) |
| | b. New Residential SF Interior GPCD Component | = | 57 (2) |
| | c. New Residential MF Interior GPCD Component | = | 57 (2) |
| | d. New Residential SF Exterior GPHUD Component | = | 75 (2) |
| | e. New Residential MF Exterior GPHUD Component | = | 58 (2) |
| | f. Non-Residential GPCD Component | = | 49 (3) |
| 4) | COMPONENT ALLOTMENTS IN ACRE-FEET: | | |
| | a. Existing Residential Component = 37,650 pop x 92 GPCD x 365/325851 | = | 3,880 AF/YR |
| | b. New SF Interior Component = 683 pop x 57 GPCD x 365/325851 | = | 44 AF/YR |
| | c. New MF Interior Component = 165 pop x 57 GPCD x 365/325851 | = | 11 AF/YR |
| | d. New SF Exterior Component = 340 hu x 75 GPHUD x 365/325851 | = | 29 AF/YR |
| | e. New MF Exterior Component = 110 hu x 58 GPHUD x 365/325851 | = | 7 AF/YR |
| | **f. RESIDENTIAL ALLOTMENT** | **=** | **3,971 AF/YR** |
| | g. Non-Residential Component = 38,498 pop x 49 GPCD x 365/325851 | = | 2,113 AF/YR |
| | **h. NON-RESIDENTIAL ALLOTMENT** | **=** | **2,113 AF/YR** |
| | i. Lost/Unaccounted Water Component ≤ 10 percent of total annual use | = | 676 (4) AF |
| | **j. LOST/UNACCOUNTED FOR ALLOTMENT** | **=** | **676 AF** |
| | **k. TOTAL ALLOTMENT = Res. Component +Non-Res Component + L/U** | **=** | **6,760 AF** |

AF = acre-feet

(1) The existing GPCD components are listed in Table 5-103.A of the municipal conservation requirements for each large provider. The number given here is for example purposes.

(2) The New Single Family and Multifamily interior GPCD and exterior GPHUD components are based on the Draft Proposed Requirements for the Prescott AMA.

(3) Non-Residential GPCD Components will remain constant from the Second Management Plan 1 Requirements and are listed in Table 5-103.A of the municipal conservation requirements for each large provider.

(4) Lost Water Component will vary each year depending on Total Water Use. Cannot exceed 10 percent of Total Use.

# APPENDIX 5C.1
# EXTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT
# SINGLE FAMILY HOUSING UNITS
# PRESCOTT ACTIVE MANAGEMENT AREA

## SWIMMING POOLS

**Average Water Consumption**

A. Evaporation[1]

1. Average January 1988 - December 1996 Reference Evapotranspiration (ETo) = 54.05 inches/year
2. Average January 1988 - December 1996 Rainfall = 10.04 inches/year (Note: This is effective precipitation which is 50% of average yearly precipitation)
3. Average pool size = 201 square feet
4. *Calculation:*

| | | |
|---|---|---|
| 54.05 in/yr ETo - 20.08 in/yr rainfall | = | 33.97 in/yr |
| 33.97 in/yr / 12 inches per foot | = | 2.83 ft/yr |
| 201 sq ft pool * 2.83 ft/yr * 7.48 gal/cuft | = | **4,255 gal/yr** |

B. Backwash[2] - Backwashing is not recommended for Prescott pools

C. Initial Fill[2]

1. Average Pool Size = 201 square feet of surface area by 5 foot depth
2. Fill averaged over the 10 year management period
3. *Calculation*:

| | | |
|---|---|---|
| 201 sq ft * 5 ft * 7.48 gal/cuft / 10 years | = | **752 gal/pool/yr** |

D. Maintenance Refill[2]

1. Average Pool Size = 201 square feet of surface area by 5 foot depth.
2. Allow for complete refill once every 10 years - ADWR assumption
3. *Calculation*:

| | | |
|---|---|---|
| 201 sq ft * 5 ft * 7.48 gal/cuft | = | 7,517 gal/pool/yr |
| 7,517 gal/pool/yr / 10 years | = | **752 gal/yr** |

E. Pool Cover Savings - Pool cover used from October to April

1. Average pool size = 201 square feet of surface area by 5 foot depth.
2. Average evaporation = 1 ft/yr or 0.5 ft from October to April
3. *Calculation:*

| | | |
|---|---|---|
| 201 sq ft * 0.5 ft/yr * 7.48 gal/cuft | = | **(752 gal/yr)** |

F. TOTAL ANNUAL DEMAND FOR NEW POOLS

1. *Calculation*:

| | | |
|---|---|---|
| Evaporation | = | 4,255 gal/yr |
| Backwash | = | 0 gal/yr |
| Initial Fill | = | 752 gal/yr |
| Maintenance/Refill | = | 752 gal/yr |
| | | - 752 gal/yr |
| TOTAL | = | **5,007 gal/yr** |

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1 ETo and Rainfall from Arizona Meteorological Network, Prescott stations (www.ag.arizona.edu/AZMET)

2 Data from Prescott Pool and Spa, ADWR Prescott AMA telephone interview, February 1997.

## APPENDIX 5C.1 *(continued)*
## EXTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT
## SINGLE FAMILY HOUSING UNITS
## PRESCOTT ACTIVE MANAGEMENT AREA

SWIMMING POOLS

G. Installation Rates

1. *Calculation*:

| | | |
|---|---|---|
| Total Annual Pool Demand = 5,007 gal/yr * 10% | = | **501 gal/yr** |

H. **DEMAND PER HOUSING UNIT PER DAY**

| | | |
|---|---|---|
| 501 gal/yr / 365 days | = | **1.37 GPHUD** |

## APPENDIX 5C.2
## EXTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT
## SINGLE FAMILY HOUSING UNITS
## PRESCOTT ACTIVE MANAGEMENT AREA

EVAPORATIVE COOLING

**Average Water Consumption**[1]

A. Average Annual Demand[2] (June thru September = 122 days * 14 hours/day = 1,708)

1. Coolers with Bleed-Off Systems

| | | |
|---|---|---|
| 1,708 cooling hour per season @ 8 gal/hour | = | 13,664 gallons |
| 59.02% utilize bleed-off * 13,664 gal | = | 8,064 gallons |

2. Coolers without Bleed-Off Systems

| | | |
|---|---|---|
| 1,708 cooling hours per season @ 4 gal/hour | = | 6,832 gallons |
| 40.98% without bleed-off * 6,832 gal | = | 2,800 gallons |

3. *Calculation*:

| | | |
|---|---|---|
| 8,064 gallons + 2,800 gallons | = | **10,862 gallons** |

B. Installation[3]

1. Dual Cooling System

Assume 15 percent installation

2. *Calculation*:

| | | |
|---|---|---|
| 10,862 gallons * 15 percent per year | = | **1,629 gallons/year** |

C. **DEMAND PER HOUSING UNIT PER DAY**

1. *Calculation*:

| | | |
|---|---|---|
| 1,629 gal/yr / 365 days/yr * 0.6 | = | **2.70 GPHUD** |

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1 M.. Karpisak, Babcock, T., France, G., Zauderer, J., Hopf, S. and Foster, K., "Evaporative Cooler Water Use In Phoenix, Journal, Vol. 90, Issue 4 (April 1998), American Water Works Association.

2 Numbers may not total due to rounding (59.016393442623% & 40.9836065573771%).

3 City of Phoenix telephone survey, 1993.

# APPENDIX 5C.3
# EXTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT
# SINGLE FAMILY HOUSING UNITS
# PRESCOTT ACTIVE MANAGEMENT AREA

## LANDSCAPING

**Average Water Consumption**

A. Turf

1. Turfed area of 450 square feet assumed as the average for all new housing units in the Prescott AMA.
2. Turf application rate assumes water application at 60% of average annual reference evapotranspiration (ETo) and effective Rainfall at 50% of annual average.
3. Irrigation efficiency for residential sprinkler systems at 75%
4. *Calculation*:

| | | |
|---|---|---|
| 450 sq ft * 3.66 af/ac * 7.48 gal/cuft | = | 12,320 gallons/year |
| 12,320 gal/yr / 75% irrigation efficiency | = | **16,427 gallons/year** |
| | (= | 40.50 GPHUD @ 90% installation) |

B. Trees

1. Water application based on 20% of average growing season (April - September) reference ETo and effective rainfall at 10% of growing season average
2. Assume 14 foot canopy size - requires 13 gallons/week
3. Assume 10 low water using trees
4. Assume 70% irrigation efficiency for residential drip irrigation
5. *Calculation*:

| | | |
|---|---|---|
| 13 gallons/week * 10 trees * 52 weeks | = | 6,760 gallons/year |
| 6,760 gal/yr / 70% irrigation efficiency | = | **9,657 gallons/year** |
| | (= | 26.46 GPHUD @ 100% installation) |

C. Shrubs

1. Water application based on 20% of average growing season (April - September) reference ETo and effective rainfall at 10% of growing season average
2. Assume 4 foot canopy size - requires 1 gallon per week
3. Assume 20 low water using shrubs
4. Assume 70% irrigation efficiency for residential drip irrigation
5. *Calculation*:

| | | |
|---|---|---|
| 1 gal/week * 20 shrubs * 52 weeks | = | 1,040 gallons/year |
| 1,040 gal/yr / 70% irrigation efficiency | = | **1,486 gallons/year** |
| | (= | 4.07 GPHUD @ 100% installation) |

D. **DEMAND PER HOUSING UNIT PER DAY**

1. *Calculation*:

| | | |
|---|---|---|
| 14,784 + 9,657 + 1,486 | = | 25,927 gallons/year |
| 25,927 / 365 days/year | = | **71.03 GPHUD** |

## APPENDIX 5C.4
## EXTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT
## MULTIFAMILY HOUSING UNITS
## PRESCOTT ACTIVE MANAGEMENT AREA

**Average Water Consumption**

A. Swimming Pool, Spa - None

B. Evaporative Cooling - Same as for single family model

**DEMAND PER HOUSING UNIT PER DAY**

*Calculation*:

| | | |
|---|---|---|
| 1,629 gal/yr / 365 days/yr * 0.6 | = | **2.70 GPHUD** |

C. Turf

1. Turfed area of 275 square feet assumed as the average for all new housing units in the Prescott AMA.
2. Turf application rate assumes water application at 60% of average annual reference evapotranspiration (ETo) and effective Rainfall at 50% of annual average.
3. Irrigation efficiency for residential sprinkler systems at 75%
4. *Calculation*:

| | | |
|---|---|---|
| 275 sq ft * 3.66 af/ac * 7.48 gal/cuft | = | 7,529 gallons/year |
| 7,529 gal/yr / 75% irrigation efficiency | = | **10,039 gallons/year** |
| | (= | 27.50 GPHUD @ 100% installation) |

D. Trees

1. Water application based on 20% of average growing season (April - September) reference ETo and effective rainfall at 10% of growing season average
2. Assume 14 foot canopy size - requires 13 gallons/week
3. Assume 10 low water using trees
4. Assume 70% irrigation efficiency for residential drip irrigation
5. *Calculation*:

| | | |
|---|---|---|
| 13 gallons/week * 9 trees * 52 weeks | = | 6,084 gallons/year |
| 6,084 gal/yr / 70% irrigation efficiency | = | **8,691 gallons/year** |
| | (= | 23.81 GPHUD @ 100% installation) |

E. Shrubs

6. Water application based on 20% of average growing season (April - September) reference ETo and effective rainfall at 10% of growing season average
7. Assume 4 foot canopy size - requires 1 gallon per week
8. Assume 20 low water using shrubs
9. Assume 70% irrigation efficiency for residential drip irrigation
10. *Calculation*:

| | | |
|---|---|---|
| 1 gal/week * 20 shrubs * 52 weeks | = | 1,040 gallons/year |
| 1,040 gal/yr / 70% irrigation efficiency | = | **1,486 gallons/year** |
| | (= | 4.07 GPHUD @ 100% installation) |

F. **DEMAND PER HOUSING UNIT PER DAY**

11. *Calculation*:

| | | |
|---|---|---|
| 10,039 + 8,691 + 1,486 | = | 20,216 gallons/year |
| 20,216 / 365 days/year | = | **55.39 GPHUD** |

# *APPENDIX 5D.1*

# *RESIDENTIAL INTERIOR AND EXTERIOR STANDARD REASONABLE CONSERVATION MEASURES*

*RESIDENTIAL INTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

***WATER AUDIT AND FIXTURE RETROFIT PROGRAM FOR EXISTING RESIDENTIAL CUSTOMERS***

***Description:*** *Water provider staff or hired consultants visit residences, or resident performs self-audit, to examine water use practices, detect leaks, make recommendations for improved efficiency, and install retrofit devices. Water use reduction from installation of devices depends on the life of the device; for example, toilet flapper normally lasts about five years.*

***Implementation Levels:*** *Minimum Conservation Potential: The provider shall notify all existing residential customers of the availability of a self-audit and retrofit kit. The provider shall distribute a kit to all customers who request one. Moderate Conservation Potential: The provider shall perform minimum level requirement, plus a minimum of 10 percent of all pre-1980 housing units shall be audited and retrofitted, free of charge to the customer, by January 1, 2010 either by the homeowner or by a trained auditor. Maximum Conservation Potential: The provider shall perform minimum level requirement, plus a minimum of 20 percent of all pre-1980 housing units shall be audited and retrofitted, free of charge to the customer, by January 1, 2010 either by the homeowner or by a trained auditor.*

*The self-audit and retrofit kit shall include, at a minimum, toilet leak detection dye tabs, instructions on measuring flow from fixtures, leak repair and fixture replacement instructions, advice on behavioral changes to save water, a toilet conservation device, a low flow showerhead, and faucet aerators. The audit shall include measurement of flow rates from plumbing fixtures and a check for leaks.*

*The housing units audited or retrofitted to meet this requirement shall not include any housing unit that was audited or retrofitted prior to acceptance into this program for the third management period unless the water use of the housing unit is inefficient.*

***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include a report containing information as agreed to at the time of acceptance into the Non-Per Capita Conservation Program sufficient to assess program effectiveness, including information on the method(s) used to contact customers, the annual number of audits and retrofits performed and self-audit kits sent out, and an estimate of the number and volume of leaks found and repaired.*

*RESIDENTIAL INTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

***ORDINANCE OR CONDITION OF NEW SERVICE PROHIBITING INSTALLATION OR REPLACEMENT OF PLUMBING FIXTURES IN RESIDENTIAL HOUSING UNITS UNLESS FIXTURES MEET WATER SAVING STANDARDS***

***Description:*** *The provider adopts an ordinance or establishes conditions of new service prohibiting the installation of plumbing fixtures in new residential housing units and the replacement of plumbing fixtures in existing residential housing units unless the fixtures meet water efficiency standards. Plumbing fixtures to be covered and their respective maximum use rates are as follows:*

- *Faucets-kitchen and lavatory* *3.0 gpm*
- *Replacement aerators - kitchen and lavatory* *3.0 gpm*
- *Metering faucets* *.25 gpc*
- *Toilets* *1.6 gpf*
- *Showerheads* *3.0 gpm*
- *Evaporative cooling systems/Decorative fountains must be equipped with water recycling or reuse systems*

*Waivers may be available for unusual circumstances (e.g., historic buildings or areas where sanitation or health codes may conflict).*

***Implementation:*** *The provider shall adopt and enforce a plumbing ordinance or establish conditions of new service prohibiting the installation of plumbing fixtures in new housing units and the replacement of plumbing fixtures in existing housing units unless the fixtures meet the water savings performance standards outlined in the description above. Implementation of this RCM shall include a proactive inspection and enforcement program which ensures compliance with the applicable ordinance or conditions of service.*

***Monitoring/Reporting:*** *The annual report required by A.R.S. § 45-632 shall include a copy of the current local plumbing ordinance or sample conditions of new service agreement which meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.*

*In addition, the provider shall include in the annual report evidence of implementation of the applicable ordinance or conditions of service by reporting the number of certificates of occupancy issued in the service area, the number of permits issued for the replacement of plumbing fixtures in existing housing units, the number of housing units inspected, the number and type of plumbing fixture violations, and any enforcement action taken.*

*A provider that is not a city or town shall also collect and examine all inspection records for new permits issued by governmental entities for the installation of original plumbing fixtures in new housing units and the replacement of plumbing fixtures in existing housing units within the provider's service area and report any plumbing code or plumbing ordinance violations that have not been enforced to the governing body of the entity charged with enforcing the code or ordinance.*

*Note: This documentation will be used to evaluate the effectiveness of the RCM. It will not be used to require any modification of the negotiated non-per capita conservation program agreement.*

*RESIDENTIAL EXTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

## *AUDIT PROGRAM FOR EXISTING RESIDENTIAL CUSTOMERS*

***Description:*** *Trained auditors visit residences to examine outdoor water use practices, or materials are supplied for a self-audit of outdoor water use practices. Areas of emphasis are irrigation scheduling advice, sprinkler and drip systems inspection, evaporative cooler inspection, information on improving water retaining capacity of the soil, information on water-conserving landscapes, such as Xeriscape™ or comparable information, and swimming pool maintenance and evaporation control (i.e., pool covers). This program shall be designed to target those customers with the greatest conservation potential.*

***Implementation Levels:*** *Minimum Conservation Potential: The provider shall notify all existing residential customers of the availability of an exterior water use self-audit packet. The packet shall include at a minimum information on checking irrigation systems for efficiency and leaks, information on checking evaporative coolers for efficiency and leaks, irrigation schedules, and information on water-conserving landscapes, such as Xeriscape™ or comparable information. The provider shall distribute a packet to all customers who request one. Moderate Conservation Potential: The provider shall implement the minimum level program plus 5 percent of total housing units in existence when the provider is accepted into this program shall be audited either by the homeowner or a trained auditor free of charge to the customer. Audits shall be completed by January 1, 2010. Maximum Conservation Potential: The provider shall implement the minimum level program plus 10 percent of total housing units in existence when the provider is accepted into this program shall be audited either by the homeowner or a trained auditor free of charge to the customer. The audits shall be completed by January 1, 2010.*

*For both the moderate and maximum levels of implementation, the ratio of audited multifamily housing units to audited single family housing units shall be no greater than the ratio of total multifamily housing units to total single family housing units in the entire service area.*

*The housing units audited to meet this requirement shall not include any housing unit that was audited prior to acceptance into this program for the third management period unless the water use of the housing unit is inefficient.*

***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include a report on the number of housing units audited, plus a follow-up survey of a statistically significant sample of those audited, as agreed to by the director, to determine if audited customers have implemented any changes in exterior use habits, irrigation system, or landscaping.*

*RESIDENTIAL EXTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

| *LANDSCAPE WATERING ADVICE PROGRAM FOR EXISTING AND NEW RESIDENTIAL CUSTOMERS* |
|---|
| ***Description:*** *Landscape watering advice helps existing and new homeowners to irrigate efficiently. The components of a landscape watering advice program may include guidelines for irrigation scheduling based on time of day or season and dissemination of weather-based watering information (e.g., ET rate based on solar radiation, temperature, rainfall, and relative humidity). Programs which encourage watering only every other day and only at certain times of day have also been shown to save water.* |
| ***Implementation Levels:*** *Minimum Conservation Potential: The provider shall notify all existing and new residential customers of the availability of information from the provider regarding the general benefits of efficient landscape watering including water and cost savings. This notification shall be through water bill inserts printed directly on bills in a prominent manner, or some other mechanism approved by the director. The provider shall distribute the landscape watering information to all customers who request it. Moderate Conservation Potential: The provider shall mail the landscape watering information to all existing and new residential customers or make it available to the customers at local distribution centers such as schools, libraries, plant nurseries, or model homes and notify all residential customers of the location of the information. Maximum Conservation Potential: The provider shall implement the moderate level programs plus hold workshops on landscape irrigation and/or have a landscape advisor available for telephone advice to customers. The provider shall hold at least one workshop annually for every 100,000 persons in the provider's service area. If there are less than 100,000 persons, the provider shall hold one workshop annually. If the telephone advice option is chosen, the provider shall publicize the telephone number at least once quarterly.* |
| ***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include a report on the methods used to contact customers, the number of pamphlets/brochures distributed, the number of workshops conducted, and the number of phone calls taken to give landscape irrigation advice.* |

*RESIDENTIAL EXTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

***ORDINANCE OR CONDITIONS OF NEW SERVICE FOR MODEL HOMES IN NEW RESIDENTIAL DEVELOPMENTS***

***Description:*** *Model homes in new developments are required to use low water use landscaping in front yards to set the tone for landscaping by homeowners. This measure helps to educate home buyers about the possibilities of appropriate landscaping for the area. Provision of information on low water use landscaping and/or landscape packages offered to new home buyers reinforces the message.*

***Implementation:*** *The provider shall adopt and enforce an ordinance or establish conditions of new service requiring that new model homes meet water efficient standards. These include limitation of water-intensive landscaping to 20 percent of landscapable area, location of such landscaping where it is functionally useful, use of low water use plants from the Department's Low Water Use Plant List (Appendix 5F) in the remaining area, and use of efficient irrigation systems in all areas. Information on low water use landscaping and/or landscape packages with low water use landscaping shall be made available and displayed in a prominent manner at the model home site. For purposes of this RCM, the term "water-intensive landscaped area" means an area of land that is watered with a permanent water application system and planted primarily with plants not listed in Appendix 5F (Low Water Use Plant List), or any modifications to the list, and the total surface area of all water features (including swimming pools of any size, fountains, ponds, watercourses, waterfalls, and other artificial water structures) filled or refilled with water from any source.*

***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement. Each calendar year the provider shall submit a report on the number and location of model homes built during the reporting year.*

*In addition to the annual reporting requirements, the provider shall maintain and submit to the Department upon request a copy of the landscape packages or landscape information provided by each developer to new home buyers.*

*RESIDENTIAL EXTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

***PROHIBIT THE CREATION OF NEW COVENANTS, CONDITIONS, AND RESTRICTIONS WHICH REQUIRE THE USE OF WATER-INTENSIVE LANDSCAPING OR WHICH PROHIBIT THE USE OF LOW WATER USE LANDSCAPING IN NEW RESIDENTIAL DEVELOPMENTS***

***Description:*** *In an effort to promote and facilitate installation of water conserving landscaping, the provider refuses to serve water to new subdivisions which have covenants, conditions, and restrictions which require the use of water-intensive landscaping or prohibit low water use landscaping. This would not prohibit water-intensive landscaping, but would allow homeowners to install the landscaping of their choice.*

***Implementation:*** *The provider shall adopt and enforce an ordinance or establish conditions of new service requiring that developers of new subdivisions neither forbid low water use landscaping nor require water-intensive landscaping through covenants, conditions, and restrictions.*

***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.*

***RESIDENTIAL EXTERIOR***
***STANDARD REASONABLE CONSERVATION MEASURE (1 OF 3)***

***ORDINANCE OR CONDITIONS OF NEW SERVICE LIMITING USE OF TURF AND OTHER WATER-INTENSIVE LANDSCAPING IN NEW MULTIFAMILY DEVELOPMENTS***

***Description:*** *The provider adopts an ordinance or establishes conditions of new service which limits and sets criteria for water-intensive landscaping in multifamily developments.*

***Implementation:*** *The provider shall adopt and enforce an ordinance or establish conditions of new service requiring that new multifamily developments meet water conserving landscaping standards, including limitation of water-intensive landscaping to individual patio areas and those areas used for active recreational purposes, and prohibiting water-intensive landscaping in all other areas, including common areas not used for active recreational purposes. In addition, the ordinance or conditions of new service shall require the use of efficient irrigation systems.* ***This RCM can be chosen only by providers with significant conservation potential in the new multifamily sector.***

***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.*

***RESIDENTIAL EXTERIOR***
***STANDARD REASONABLE CONSERVATION MEASURE (2 OF 3)***

| ***ORDINANCE OR CONDITIONS OF NEW SERVICE LIMITING THE USE OF TURF AND OTHER WATER-INTENSIVE LANDSCAPING IN COMMON AREAS OF NEW SINGLE FAMILY AND MULTIFAMILY DEVELOPMENTS*** |
|---|
| ***Description:*** *The provider adopts an ordinance or establishes conditions of new service which limits turf and other water-intensive landscaping within common areas of new single family and multifamily developments.* |
| ***Implementation:*** *The provider shall adopt and enforce an ordinance or establish conditions of new service requiring that water-intensive landscaping within all common areas of new housing developments not exceed 10 percent of the total landscapable area of the common area. Those areas used for active recreational purposes shall not be included in calculating the common area.* |
| ***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.* |

*RESIDENTIAL EXTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE (3 OF 3)*

| *REBATE PROGRAM FOR NEW RESIDENTIAL CUSTOMERS* |
|---|
| ***Description:*** *A rebate is offered for new landscapes that are designed to be efficient in water use. The landscapes may be required to meet pre-established design, plant selection, installation, and maintenance standards.* |
| ***Implementation:*** *The provider shall offer all new residential customers a rebate for installing low water use landscaping. The rebate shall be in the form of cash, a reduction in water bills, or a waiver or rebate of the development (hookup) fee.* |
| ***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include the number of rebates given, the amount of money distributed to participating customers, and an estimate of water savings for the reporting year.* |

# *APPENDIX 5D.2*

# *NON-RESIDENTIAL INTERIOR AND EXTERIOR STANDARD REASONABLE CONSERVATION MEASURES*

*NON-RESIDENTIAL INTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

*INTERIOR AUDIT PROGRAM FOR EXISTING FACILITIES*

***Description:*** *The provider offers audits conducted by trained personnel or instructions for a self-audit to existing non-residential customers (excluding turf-related facilities, large scale cooling facilities, and landscaped public rights-of-way). These audits will be designed to include personal sanitation, cooling, and process water use as applicable for each facility. Audits for personal sanitation include visual leak detection, water budget analysis, recommendations for improved water use efficiency, staff education, and a retrofit analysis; cooling audits include education to determine system conductivity, maintenance practices, system operation, and design characteristics. Process water uses are audited where conservation potential exists. After the audit has been conducted the facility compiles information into a post-audit report to be submitted to the provider. Provider staff reviews and makes recommendations to improve water usage at the facility.*

***Implementation:*** *The provider shall notify all existing non-residential customers (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way) of the availability of an audit performed on-site free of charge by staff or hired consultants, or a self-audit packet which at a minimum shall include information on how to conduct a self-audit and complete a post-audit report to be returned to the provider. The provider shall evaluate each analysis and make recommendations to the facility for water conservation potential. Existing non-residential customers that collectively receive at least 20 percent of the total non-residential water use in the provider's service area (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way) shall be audited either by the non-residential customer or by trained personnel. The measurement of 20 percent of non-residential use shall be based on the most current water use records available when the provider enters the program. Annual progress requirements will be negotiated between the Department and the provider with the provider required to complete all the necessary audits by January 1, 2010.* ***This RCM shall be implemented in conjunction with the Exterior Audit for Existing Facilities.***

***Monitoring/Reporting:*** *The Annual Report required by A.R.S. § 45-632 shall include the number of facilities audited by the provider and the number of facilities that conducted a self-audit and returned post-audit report to the provider within the reporting year. The annual report shall include the name and type of facility audited and its annual water use for the previous year. The provider shall maintain and make available for the Department's inspection the name, address, phone number, contact person, and audit report for each facility audited.*

*In addition to the annual reporting requirements, the provider shall collect, maintain, and submit to the Department upon request information on selected facilities that utilize this program in order to allow an effective evaluation of the program. The number of records and type of data to be maintained will be determined at the time the provider enters the program. Note: This evaluation will be used to improve effectiveness of RCMs. It will not be used to require any modification of the negotiated Non-Per Capita Conservation Program agreement.*

## *NON-RESIDENTIAL INTERIOR*
## *STANDARD REASONABLE CONSERVATION MEASURE*

***ORDINANCE OR CONDITION OF NEW SERVICE PROHIBITING INSTALLATION OR REPLACEMENT OF PLUMBING FIXTURES IN NON-RESIDENTIAL FACILITIES UNLESS FIXTURES MEET WATER SAVING STANDARDS***

***Description:*** *The provider adopts an ordinance or establishes conditions of new service prohibiting the installation of plumbing fixtures in new non-residential facilities and the replacement of plumbing fixtures in existing non-residential facilities unless the fixtures meet water efficiency standards. Plumbing fixtures to be covered and their respective maximum use rates are as follows:*

- *Faucets-kitchen and lavatory* — *3.0 gpm*
- *Replacement aerators - kitchen and lavatory* — *3.0 gpm*
- *Metering faucets* — *.25 gpc*
- *Gravity tank-type and flushometer toilets* — *1.6 gpf*
- *Electromechanical hydraulic toilets* — *1.6 gpf*
- *Blowout toilets* — *1.6 gpf*
- *Showerheads* — *3.0 gpm*
- *Urinals* — *1.0 gpm*
  *(automatic, timed, and self-flushing urinals are prohibited)*
- *Evaporative cooling systems/Decorative fountains must be equipped with water recycling or reuse systems*

*Waivers may be available for unusual circumstances (e.g., hospitals and other areas where sanitation or health codes may conflict).*

***Implementation:*** *The provider shall adopt and enforce a plumbing ordinance or establish conditions of new service prohibiting the installation of plumbing fixtures in new non-residential facilities and the replacement fixtures in existing non-residential facilities unless the fixtures meet the water savings performance standards outlined in the description above. Implementation of this RCM shall include a proactive inspection and enforcement program which ensures compliance with the applicable ordinance or conditions of service.*

***Monitoring/Reporting:*** *The annual report required by A.R.S. § 45-632 shall include a copy of the current local plumbing ordinance or sample conditions of new service agreement which meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.*

*In addition, the provider shall include in the annual report evidence of implementation of the applicable ordinance or conditions of service by reporting the number of certificates of occupancy issued in the service area, the number of permits issued for the replacement of plumbing fixtures in existing non-residential facilities, the number of non-residential facilities inspected, the number and type of plumbing fixture violations, and any enforcement action taken.*

*A provider that is not a city or town shall also collect and examine all inspection records for new permits issued by governmental entities for the installation of original plumbing fixtures in new facilities and the replacement of plumbing fixtures in existing non-residential facilities within the provider's service area and report any plumbing code or plumbing ordinance violations that have not been enforced to the governing body of the entity charged with enforcing the code or ordinance.*

*Note: This documentation will be used to evaluate the effectiveness of the RCM. It will not be used to require any modification of the negotiated Non-Per Capita Conservation Program agreement.*

*NON-RESIDENTIAL INTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

***DISTRIBUTION OF CONSERVATION INFORMATION TO ALL NEW NON-RESIDENTIAL CUSTOMERS & SUBMITTAL OF WATER USE PLAN BY NEW LARGE FACILITIES***

***Description:*** *Provider distributes a conservation packet to all new non-residential customers when an application is submitted for a building permit. The conservation packet includes educational material on the best commercially available technologies, current codes affecting water use at each facility, and a standard form approved by the Department to be filled out by the new customer. This form will function as the water use plan to be submitted by all new non-residential customers who may potentially use 10 acre-feet or more of water annually. Turf-related facilities, large-scale cooling facilities, and new large produce processing facilities are excluded from the requirement to submit a water use plan as they are required in the Industrial Conservation Program to submit a water conservation plan. Utilization of the plan helps increase the awareness of best available technologies as they become available within each industry.*

*The water use plan shall identify all water uses anticipated by the user and the water conservation measures to be utilized. The water use plan shall include at least the following information (where applicable):*

- *Water conservation education/training for employees*
- *Use of alternative water sources (i.e., effluent, remediated groundwater, or other non-groundwater sources)*
- *Operating TDS or conductivity for cooling towers and total cooling capacity*
- *Use of best available technologies in accordance with existing process uses (i.e., recirculating systems for process water, alternative dust control methods, automatic shut-down devices to eliminate continual running of water)*
- *Any plans for the reuse of wastewater or process water at the facility*
- *Type of landscaping and irrigation system*

***Implementation:*** *The provider shall distribute a conservation packet as described above to all new non-residential customers prior to construction when an application is submitted for a building permit (private water companies shall distribute a conservation packet when contacted for new service). As a condition of new service, those non-residential customers who will potentially use 10 acre-feet or more of water annually, excluding turf-related facilities, large-scale cooling facilities, and new large produce processing facilities shall be required to submit a water use plan as outlined in the description above to be reviewed by water provider staff. The Department will supply to the provider the necessary form and guidelines to complete the water use plan at the time the provider enters this program. Where necessary, provider staff shall make recommendations for efficient use of water to the new user.*

***Monitoring/Reporting:*** *The Annual Report required by A.R.S. § 45-632 shall include a copy of the sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the agreement. The provider shall also include in the annual report the number of conservation packets distributed annually and the number of water use plans received during the reporting year.*

*In addition to the annual reporting requirements, the provider shall maintain and submit to the Department upon request the water use plans submitted by non-residential customers.*

*NON-RESIDENTIAL EXTERIOR*
*STANDARD REASONABLE CONSERVATION MEASURE*

## *EXTERIOR AUDIT PROGRAM FOR EXISTING NON-RESIDENTIAL CUSTOMERS*

***Description:*** *Trained auditors visit existing non-residential customers (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way) to examine outdoor water use practices, or materials are supplied for a self-audit of outdoor water use practices. These audits are designed for landscape water use and include a survey of water use practices or scheduling, a visual leak detection analysis, examination of the current irrigation system maintenance and efficiency, and an examination of existing employee education or training. After the audit has been conducted the facility compiles information into a post-audit report to be submitted to the provider. Provider staff reviews and makes recommendations to improve water usage at the facility.*

***Implementation:*** *The provider shall notify all existing non-residential customers (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way) of the availability of an audit performed on-site free of charge by staff or hired consultants, or a self-audit packet which shall include at a minimum information on how to conduct a self-audit and complete a post-audit report to be returned to the provider. The provider shall evaluate each post-audit report and make recommendations to the facility for water conservation potential. Existing non-residential customers that collectively receive at least 20 percent of the total non-residential water use in the provider's service area (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way) shall be audited either by the non-residential customer or by a trained auditor. The measurement of 20 percent of non-residential use shall be based on the most current water use records available when the provider enters the program. Annual progress requirements will be negotiated between the Department and the provider with the provider required to complete all the necessary audits by January 1, 2010.* ***This RCM shall be implemented in conjunction with the Interior Audit for Existing Facilities.***

***Monitoring/Reporting:*** *The Annual Report required by A.R.S. § 45-632 shall include the number of facilities audited by the provider and the number of facilities that conducted a self-audit and returned a post-audit report to the provider within the reporting year. The annual report shall include the name and type of facility audited and its annual water use for the previous year. The provider shall maintain and make available for the Department's inspection the name, address, phone number, contact person, and audit report for each facility audited.*

*In addition to the annual reporting requirements, the provider shall collect and maintain information on selected facilities that utilize this program in order to make an effective evaluation of the program. The number of records and type of data to be maintained will be determined at the time the provider enters the program.*

*Note: This evaluation will be used to improve effectiveness of RCMs. It will not be used to require any modification of the negotiated Non-Per Capita Conservation Program agreement.*

## *NON-RESIDENTIAL EXTERIOR*
## *STANDARD REASONABLE CONSERVATION MEASURE*

### *LANDSCAPE ORDINANCE OR CONDITION OF NEW SERVICE FOR NEW FACILITIES*

***Description:*** *Provider requires new non-residential customers to limit water-intensive landscaping, install efficient irrigation systems, and limit water features, fountains, waterfalls, ponds, water courses, and other artificial water structures.*

***Implementation:*** *The provider shall adopt and enforce an ordinance or establish conditions of new service requiring new non-residential customers with greater than or equal to 10,000 square feet of landscapable area to comply with the following, as applicable: (1) A new large landscape user that is not a hotel or motel, as defined in section 6-801 of this plan, shall limit water-intensive landscaping to an area not to exceed the area calculated by adding 10,000 square feet plus twenty percent of the facility's landscapable area in excess of 10,000 square feet. Schools, parks, cemeteries, golf courses, common areas of housing developments, and public recreational facilities with water-intensive landscaping greater than or equal to 10 acres are exempt from this provision, as they are regulated under the individual user requirements; (2) New hotels and motels shall limit the area of water-intensive landscaping to no more than 20 percent of the landscapable area in excess of 20,000 square feet; (3) Only efficient irrigation systems shall be used; and (4) The use of water features, including fountains, waterfalls, ponds, water courses, and other artificial water structures shall be limited and shall be equipped with water recycling or reuse systems.*

***Monitoring/Reporting:*** *The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.*

# *APPENDIX 5D.3*

# *EDUCATION*
# *STANDARD*
# *REASONABLE CONSERVATION MEASURES*

*EDUCATION*
*STANDARD REASONABLE CONSERVATION MEASURE*

*PUBLIC INFORMATION AND EDUCATION PROGRAM*

***Description:*** *Educating customers about the need for water conservation is essential to the success of any conservation program. There are many ways to educate and inform the public, including the distribution of information packets, brochures, pamphlets, bill inserts, newsletters, fact sheets, calendars, "tents" in restaurants, conducting "workshops," and radio and TV public service announcements. Another method is the provision of information that allows customers to compare their current water use with the amount of water they used during the preceding billing period and the same billing period in the previous year. Water use tracking information may be effective because it is personalized and is updated and repeated with every billing cycle. Printed materials and public service announcements can be effective for many months to the extent that they are heard, seen, or read and acted upon.*

***Implementation:*** *A minimum of once a year, the provider shall supply all customers with information on the following, using methods agreed to at the time of acceptance into the Non-Per Capita Conservation Program: 1) the significance and relevance of water conservation, and methods of conserving water, including information about conservation devices and behavioral changes that save water; and 2) how to participate in other conservation programs offered by the provider under the Non-Per Capita Conservation Program (e.g., audits, rebates, workshops). The provider shall also develop and distribute with every billing, conservation billing in either graphical or numerical format (i.e., graphs or numbers) showing current water use, the amount of water used during the preceding billing period and the same billing period in the previous year.*

***Monitoring and Reporting Requirements:*** *The Annual Report required by A.R.S. § 45-632 shall include examples of the materials provided, a report on the methods used to contact customers, and the number of materials distributed in any form.*

# *APPENDIX 5D.4*

# *SUBSTITUTE*
# *REASONABLE CONSERVATION MEASURES*

## *SUBSTITUTE REASONABLE CONSERVATION MEASURE LIST*

*The Substitute RCM List for the Prescott Active Management Area (AMA) is filed in the Department's Prescott AMA office. A copy of the list effective as of the date of this Plan follows in this Appendix. Since the list may be amended in the manner described below, a current list is available upon request from the Prescott AMA office.*

## *PROCEDURE FOR MODIFICATION OF SUBSTITUTE RCM LIST*

1. *A municipal provider who seeks to add an RCM to the Substitute RCM List for the Prescott AMA may apply at any time to the director for a modification of the list. The application shall be made on a form prescribed and furnished by the director.*

2. *The director shall review each request for a modification of the Substitute RCM List. The director may request additional information from the applicant and may seek information from other sources as may be necessary to determine whether the list should be modified.*

3. *If the director approves the addition of an RCM to the Substitute RCM List, the director shall place the RCM on a supplemental list that shall be considered an addendum to the Substitute RCM List. The supplemental list shall be available upon request from the Prescott AMA office.*

4. *The director may add an RCM to the Substitute RCM List for the Prescott AMA on the director's own initiative if the director determines that implementation of the RCM, either by itself or in combination with one or more other RCMs on the Substitute RCM List, will result in a water use efficiency for the applicable water use category equivalent to the efficiency that would result from implementation of one or more of the required RCMs for that water use category.*

## *SUBSTITUTE REASONABLE CONSERVATION MEASURES*

| *RCM* | *Description* | *Implementation* |
|---|---|---|
| | ***Residential Interior*** | |
| *Low Flow Plumbing Rebate Program for Existing Residential Customers* | *Provider grants a financial rebate to residential homeowners who elect to replace existing high water use toilets, showerheads, and faucets with low-flow devices, consistent with the AWEPA.* | *Negotiated and Approved by the director* |
| *Toilet Leak Detection & Repair Program for Existing Residential Customers* | *Provider supplies non-toxic dye tablets and instructions to conduct a toilet leak detection analysis and suggestions for leak repairs.* | *Negotiated and Approved by the director* |
| *Landscape Retrofit Program for Existing Residential Customers* | *Provider grants financial incentives, including rebates, to existing customers for conversion of existing high water use landscapes to low water use landscapes. Provider supplies examples of landscape plans, plant lists, irrigation methods, and information on soil amendments and preparation.* | *Negotiated and Approved by the director* |
| | ***Residential Exterior*** | |
| *Effluent Reuse - Recycled Wastewater for Existing or New Residential Customers* | *Provider develops an effluent reuse system for existing or new housing developments and provides incentives for the reuse of effluent at facilities capable of utilizing the resource.* | *Negotiated and Approved by the director* |
| *Low Water Use Ordinance or Condition of New Service for New Residential Customers* | *Provider develops conditions of new service or ordinances that limit turf and other water-intensive landscaping in all new developments consistent with the new single family and multifamily residential exterior water use models in the Third Management Plan for the provider's AMA.* | *Negotiated and Approved by the director* |
| | ***Non-Residential Interior*** | |
| *Retrofit Distribution or Rebate Program* | *Provider supplies retrofit kits or provides rebates to non-residential facilities that elect to retrofit existing high water using plumbing fixtures to low water using fixtures consistent with the AWEPA.* | *Negotiated and Approved by the director* |
| *Process Water Conservation Program for New or Existing Facilities* | *Provider develops a program that identifies the non-residential customers within the provider's service area with the greatest conservation potential and assigns conservation measures aimed at reducing water use in these facilities.* | *Negotiated and Approved by the director* |

## *SUBSTITUTE REASONABLE CONSERVATION MEASURES*

| *RCM* | *Description* | *Implementation* |
|---|---|---|
| | ***Non-Residential Exterior*** | |
| *Rebate Program for Low Water Use Landscaping & Irrigation System Improvements for Existing or New Facilities* | *Provider offers financial incentives (e.g., rebates, reduced rates, wholesale prices on plant materials, or financing packages) to non-residential facilities to replace existing landscaping and irrigation system or installation of new landscaping or irrigation systems with low water use landscaping and efficient irrigation technologies.* | *Negotiated and Approved by the director* |
| *Effluent and Wastewater Use Incentives for Existing and New Facilities* | *Provider offers incentives for conversion of existing irrigation systems or installation of new irrigation systems capable of utilizing effluent or wastewater (includes all water discharged after an industrial or commercial use, excluding effluent) for landscape watering.* | *Negotiated and Approved by the director* |
| *Ordinance or Condition of Service Requiring the Use of Effluent for New Public Recreation Facilities* | *The provider adopts an ordinance or condition of service requiring the use of effluent in new public recreation facilities, including turf-related facilities and other facilities with a water-intensive landscaped area of 10 or more acres. The ordinance or condition of new service shall require the owner of the facility to demonstrate to the Department that the facility will be designed and operated in a manner that conserves water. Publicly owned rights-of-way are exempt from this requirement. For purposes of this RCM, "turf-related facility" and "water-intensive landscaped area" have the meanings prescribed by section 6-301 of Chapter 6.* | *Negotiated and Approved by the director.* |
| | ***Education*** | |
| *Training Opportunities* | *Provider offers ongoing seminars, workshops, lectures, and videos to promote water conservation to residential or non-residential customers, employees, educators, or professional interest groups. Topics could include landscape design and maintenance, interior water conservation methods, or general background information on regional water supply issues.* | *Negotiated and Approved by the director.* |
| *Youth Programs* | *Provider assists local school district(s) to provide water conservation and water supply information to students. Assistance can include classroom presentations, teacher education programs, curriculum, and field trips to water-related facilities.* | *Negotiated and Approved by the director.* |
| *Demonstration Sites and Exhibits* | *Provider establishes, maintains, and promotes facilities, sites, and exhibits that demonstrate water conservation including demonstration gardens, demonstration homes, conservation exhibits, and public activities.* | *Negotiated and Approved by the director.* |

## *SUBSTITUTE REASONABLE CONSERVATION MEASURES*

| *RCM* | *Description* | *Implementation* |
|---|---|---|
| *Media-Related Outreach* | *Provider to develop a media-outreach program focused on water conservation including news articles, features, and series, magazine stories, radio and television public service announcements, and television specials. Additionally, novelty items to promote local or regional conservation efforts can be distributed including buttons, posters, and bumper stickers.* | *Negotiated and Approved by the director. Must include a method to evaluate effectiveness and market penetration.* |
| | ***System-Related Measures*** | |
| *Water Audit Program* | *Provider has an audit conducted by a trained auditor of the distribution system, accuracy of the water agency records, and systems control equipment. The audit should identify, quantify, and verify water and revenue losses to allow the provider to select and implement programs to reduce water and revenue losses. Such examination should be performed annually to update the results of earlier audits. The audit must include an analysis of the water audit results and possible corrective measures including resulting costs, feasibility, and savings.* | *Negotiated and Approved by the director.* |
| *Leak Detection Program* | *Provider implements a leak detection program in conjunction with a water audit (see substitute RCM - Water Audit). The leak detection program must address losses due to leaks, unauthorized use (street, sewer, and fire departments), water department maintenance, and meter under-registration and must include repair, maintenance, and meter testing. Flushing frequency and exercise of valves should also be accounted for.* | *Negotiated and Approved by the director.* |
| *Conservation-Based Rate Structure* | *Provider develops a water rate structure which results in slowing the increase in water consumption that traditionally accompanies increases in population and per capita income. Pricing structures which may result in conservation are: increasing block rate, lifeline rate, seasonal rate, and excess demand surcharge. To be effective, the rate structure must clearly send a conservation message. The rate structure established should ensure that customers receive the proper signal that allows them to make a choice as to whether or not to implement conservation measures. Additionally, the water rate revision should be accompanied by a public awareness campaign, a water conservation device distribution program, pamphlets on low water use landscaping, or other conservation measures to increase the effectiveness of the program.* | *Negotiated and Approved by the director.* |

## *SUBSTITUTE REASONABLE CONSERVATION MEASURES*

| *RCM* | *Description* | *Implementation* |
|---|---|---|
| | ***System-Related Measures*** | |
| *Conservation Coordinator* | *Provider employs a staff person whose sole responsibility is to ensure the implementation of effective water conservation programs. The employee would act to coordinate conservation efforts in conjunction with utility staff and be the primary contact for the public regarding conservation information. The coordinator could initiate an information campaign including: pamphlets, fact sheets, bill stuffers, public service announcements, and press releases. The coordinator can also coordinate direct conservation activities other than education.* | *Negotiated and Approved by the director. Includes submittal of a complete job description for the position as well as annual goals and objectives for the program.* |
| *Water Tampering and Water Waste* | *Water provider adopts and enforces ordinances or implements policies regarding excessive and wasteful use of water. Meter reading staff and customers report water theft where ordinances are not applicable. Staff performs regular checks of water delivered and water used in distinct parts of the service areas where there is greater susceptibility to water theft.* | *Negotiated and Approved by the director.* |

## APPENDIX 5E
## INDIVIDUAL INCIDENTAL RECHARGE FACTOR CALCULATION
## PRESCOTT ACTIVE MANAGEMENT AREA

**Hydrologic Studies**
The following information must be provided:

1. A copy of a hydrological study that demonstrates the amount of water supplied by the municipal provider for use within its service area during each of the preceding five years (prior to application to the Non-Per Capita Conservation Program) and the amount of incidental recharge as calculated below that occurred within the municipal provider's service area during each of those years.

2. A copy of a hydrological study that projects the average annual amount of water that the municipal provider will supply for use within its service area during the management period and the average annual amount of incidental recharge as calculated below that will occur within the municipal provider's service area during the management period.

**Calculation of the Incidental Recharge and an Incidental Recharge Factor**
The following information should be included in the hydrologic studies:

1. A map showing:
   a. Service area boundary.
   b. Location of turfed areas and/or unlined lakes greater than 10 acres where water is provided by the municipal provider applying for the Non-Per Capita Conservation Program.
   c. Location of areas which are served by septic systems.

2. For turfed and water acres:
   a. Combined actual turfed and water acres (of facilities greater than or equal to 10 acres).
   b. Plant consumptive use (actual or using consumptive use rate published in the Second Management Plan), or measured evaporation rates.
   c. Total annual volume of water applied to facility. If only a portion of the water used is supplied by the municipal provider, document the percentage supplied by the provider who is applying for the Non-Per Capita Conservation Program and from other sources.

3. For septic systems:
   a. The number of acres of lots served by septic systems and the number of septic tanks per acre.
   b. Volume of water supplied to that system and documentation of the volume of water incidentally recharged. If only a portion of the water used is supplied by the municipal provider, document the percentage supplied by the provider and from other sources.

4. Total annual volume of water supplied by a provider for use within its service area.

5. Any other data which contribute to incidental recharge within the service area. The Department will review the data and take them under consideration.

**APPENDIX 5E** (continued)
**INDIVIDUAL INCIDENTAL RECHARGE FACTOR CALCULATION**
**PRESCOTT ACTIVE MANAGEMENT AREA**

**Calculations**

1. Turf

| | | | | |
|---|---|---|---|---|
| Annual Incidental Recharge (AF) | = | Total Annual Water Used (AF) | - | [Turfed Acres x Consumptive Use AF/Ac] |

2. Artificial Lakes

| | | | | |
|---|---|---|---|---|
| Annual Incidental Recharge (AF) | = | Total Annual Water Used (AF) | - | [Lake Acres x Evaporation Rate AF/Ac] |

3. Septic Systems

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Annual Incidental Recharge (AF) | = | Total Acres of Septic System | x | Number of Septic Systems per Acre | x | Total Annual Water Use per Household (AF) | x | Percent Water Returned for Recharge |

4. **Maximum Estimated Annual Incidental Recharge (AF)** = #1 + #2 + #3 + other data approved by the Department

5. **Incidental Recharge Factor** = $\frac{\text{Annual Incidental Recharge (\#4)}}{\text{Total Annual Volume of Water Pumped and Received.}}$

AF = acre-feet
Ac = acre

## APPENDIX 5F
## LOW WATER USE PLANT LIST
## PRESCOTT ACTIVE MANAGEMENT AREA

The Low Water Use Plant List for the Prescott AMA is filed in the Department's Prescott AMA office. A copy of the list effective as of the date of this plan follows in this Appendix. Since the list may be amended using the procedure described below, a current list is available upon request from the Prescott AMA office or from the Department's public information officer in Phoenix.

PROCEDURE FOR MODIFICATION OF LOW WATER USE PLANT LIST FOR THE PRESCOTT ACTIVE MANAGEMENT AREA

A. A person who seeks to add a plant or plants to the Low Water Use Plant List for the Prescott AMA or to delete a plant or plants from the list may apply at any time to the director for a modification of the list. The application shall be made on a form prescribed and furnished by the director.

B. The director shall review each request for a modification of the Low Water Use Plant List. The director may request additional information from the applicant and may seek information from other sources as may be necessary to determine whether the list should be modified.

C. If the director approves the addition of a plant to the Low Water Use Plant List, the director shall place the plant on a supplemental list that shall be considered an addendum to the Low Water Use Plant List. The supplemental list shall be available upon request from the Department's public information officer or the office of the Prescott AMA.

D. If the director approves the deletion of a plant from the Low Water Use Plant List, the director shall delete the plant from the list.

E. The director shall conduct an annual review of the Low Water Use Plant List and issue a modified plant list no later than January 15 of the following year. As a result of the review, the director may add plants to the list, delete plants from the list, or both.

**APPENDIX 5F**
**LOW WATER USE PLANT LIST**
**PRESCOTT ACTIVE MANAGEMENT AREA**

This list was compiled by the Department in cooperation with experts from the Desert Botanical Garden, Arizona Department of Transportation, and various nurserymen and landscape specialists from the Prescott AMA. Individuals wishing to add low water use plants to this list or delete plants from the list may submit information to the director of the Department of Water Resources for consideration. The director will amend the list as appropriate.

## TREES

| Botanical Name | Common Name |
|---|---|
| *Abies concolor* | White Fir |
| *Ailanthus altissima* | China Tree of Heaven |
| *Albizia julibrissim* | Mimosa |
| *Betula papyrifera* | Paper Birch |
| *Buchichiton populneum* | Ottle Tree |
| *Cedrus deodara* | Deodra Cedar |
| *Celtis occidentalis* | Hackberry |
| *Cupressus glabra* | Arizona Cypress |
| *Elaegnus augustifolia* | Russian Olive |
| *Fraxinus velutina* | Arizona Ash |
| *Fraxinus velutina glabra* | Modesto Ash |
| *Gleditsia tricanthos, var. Moraine* | Moraine Locust |
| *Gleditsia tricanthosinerus* | Thornless Honey Locust |
| *Juniperus drepaeanna pachyphlaia* | Alligator Juniper |
| *Juniperus scopulorum* | Rock Mountain Juniper |
| *Koellreuteria poniculata* | Golden Rain Tree |
| *Malus spp.* | Flowering Crab |
| *Morus Kingan* | Kingan Fruitless Mulberry |
| *Picea Canadensis* | White Spruce |
| *Pinus cembroedes edulis* | Pinyon Pine |
| *Pinus Halepensis* | Pine, Bristlecone |
| *Pinus ponderosa* | Ponderosa (Western Yellow) Pine |
| *Prunus padus* | Mayday Tree |
| *Quercus emoryii* | Emory Oak |
| *Quercus gambelli* | Gambell's Oak |
| *Robinia pseudocacia* | Black Locust |
| *Sequoiadendron gigantium* | Giant Sequoia |
| *Thuya occidentialis pyramidalis* | American Pyramid Arbor Vitae |
| *Tilia tomentosa* | Silver Linden |
| *Ulmus americana* | American Elm |
| *Ulmus pumila* | Chinese Elm |

## LOW WATER USE PLANT LIST *(continued)*

### SHRUBS

| Botanical Name | Common Name |
|---|---|
| *Acacia greggii* | Catclaw |
| *Acer Grandidentatum* | Big Tooth Maple |
| *Berberis mentorensis* | Mentor Barberry |
| *Berberis T. atropupurea* | Red Leaf Barberry |
| *Berberis repens* | Creeping Mahonia |
| *Buxus microphylla koreana* | Korean Boxwood |
| *Caragnan arborescens* | Siberian Peashrub |
| *Ceratoides lanata* | Winterfat |
| *Cercis occidentalis* | Western Redbud |
| *Cerocarpus ledifolius* | Curl-leaf Mountain Mahogany |
| *Chrysothamnus spp.* | Rabbitbrush |
| *Cotoneaster conguestra* | Pyrenees Cotoneaster |
| *Cotoneaster horizontalis* | Creeping Cotoneaster |
| *Cotoneaster divaricata* | Spreading Cotoneaster |
| *Cornus stolonifera* | Red-osifer Dogwood |
| *Continus coggygria* | Smoke Tree |
| *Cowania mexicana* | Cliffrose |
| *Euonymous* | Euonymous |
| *Fallugia paradoxa* | Apache Plume |
| *Hedera helix* | English Ivy |
| *Hibicus syriccus* | Rose of Sharon |
| *Holodiscus dumosus* | Bush Rockspirea |
| *Japonica* | Euonymous |
| *Kilkwitzie amabilis* | Beauty Bush |
| *Lonicera Clavey's dwarf* | Clavey's Dwarf Honeysuckle |
| *Mahonia aquifolium* | Oregon Hollygrape |
| *Philadelphus lemoinea* | Mockorange |
| *Photinia arbutifolia* | California Holly |
| *Photinia serrulata* | Chinese Photinia |
| *Physocarpus monogynus* | Ninebark |
| *Prunus virginiana demissa* | Western Chokecherry |
| *Pyracantha coccinea lalandii, coccinea pauciflora* | Firethorn Pyracantha |
| *Rhus trilobata* | Skunkbush Sumac |
| *Rhus glaba* | Smooth Sumac |
| *Rosa arizona* | Arizona Rose |
| *Rosa rugtosa* | Ramanas Rose |
| *Sambucus spp.* | Elderberry |
| *Senecio longilobus* | Threadleap Groundsel |
| *Sophora secundiflora* | Texas Mountain Laurel |
| *Spriea trichecarpa* | Korean Spriea |
| *Syringa vulgaris* | Common Lilac |
| *Tamarix parviflora* | Tamarix Juniper |
| *Taxus* | Anglojap and Hicks Yew |
| *Yucca baccata* | Indian Banana |
| *Yucca glauca* | Small Soapwood |

## LOW WATER USE PLANT LIST *(continued)*

### PERENNIALS, BULBS, ANNUALS
### (Common and/or Botanical Names not specified)

Achillea
Agave
Anacyclus depressus
Baptiaia australis
Bearded Iris
Cleome spinosa
Coreopsis
Cortaderia selloana
Cosmos
Echeveria
Erigonum
Euphorbia
Gaillardia
Kniphofia livaria
Liatris
Linum
Marrubium vulgare
Narcissus
Oenothera berlandieri
Pholmis fruticosa
Portulaca grandiflora
Sedum
Tithonia rotundifolia
Verbena
Vine Wisteria
Yucca

## APPENDIX 5G
## LOST & UNACCOUNTED FOR WATER REQUIREMENTS

**Lost & Unaccounted For Water Includes:**

**Leaks:**
- Distribution Lines
- Sewer Lines
- Storage Tanks
- Storage Ponds
- Hydrants
- Other

**Breaks:**
- Distribution Lines
- Sewer Lines
- Mains
- Hydrants
- Other

**Measurement Errors:**
- Meter Under-Registration
- Source Meter Errors
- Flumes/Weirs Errors

**Evaporation**

**Illegal Connections/Water Theft**

**Phreatophyte Uses**

**Water System Uses Include:**
- Residential Metered Deliveries
- Non-Residential Metered Deliveries
- Standpipe Uses
- *(1)* Fire Flow
- *(1)* Hydrant Meter Reading
- *(1)* Hydrant Flow Tests
- *(1)* Fire Sprinkler System Flow Tests
- *(1)* Construction
- *(1)* Dust Control
- *(1)* Line Flushing (distribution, sewer, or treatment facility)
- *(1)* Street Cleaning
- *(1)* Storm Drain Flushing
- *(1)* Water Tests & Pressure Tests
- Well Purging

*(1)* Estimates can be provided, using a method approved by the director. Documentation must be submitted with annual report.